

Captain SUBR:IM gets seasick

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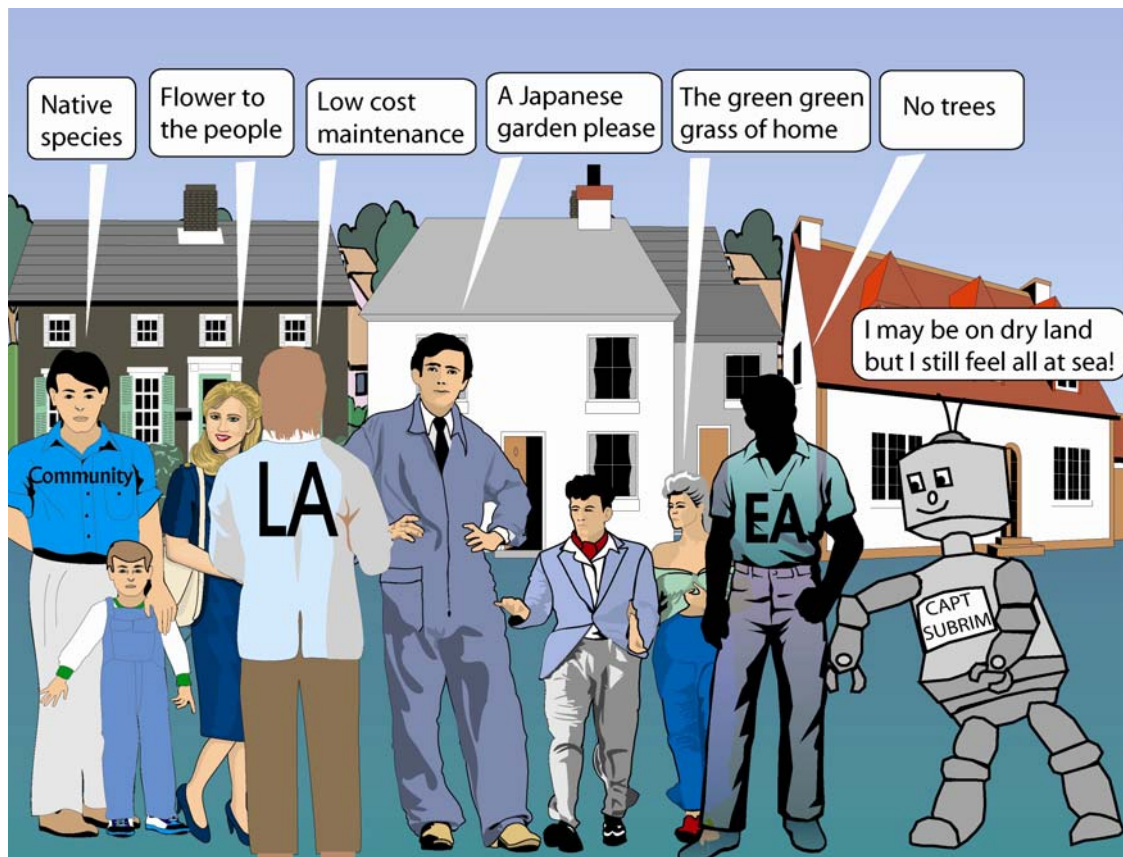
(Forest Research)

To make a play for greenspace in urban areas should seem like wasting breath. For famous cities like London, New York or Paris, most people can name equally famous parks and many will know the cliché about parks being the lungs of the city. Yet such greenspace is a legacy of more enlightened times when city fathers appreciated the importance of integrated areas for informal outdoor recreation. Many of these parks experienced substantial landscaping, including levelling and drainage, but materials used were largely those on site or from the close neighbourhood, and from natural geological or pedological sources. Most areas of greenspace in such inner cities predate the industrial revolution, and those in the suburbs were deliberately built around. As such, these land parcels were rarely contaminated, except perhaps from night soil or putrescible domestic refuse. Ecologically, limiting factors to vegetation growth were few, and the degree of horticultural care received meant that such factors could be overcome. Although inputs were comparatively high, they were cheap, and a simple definition of sustainability, that objects or systems will exist over a substantial time-frame, has evidently been fulfilled – these areas of parkland remain today, in places several centuries after their creation.

So what's the problem today? Why the big deal, about greenspace, and about sustainability? Why a job for Captain Subr:im? Doesn't all this prove that our forefathers had it sussed while we don't? Simplified, it's a case of supply and demand. On the supply side, greenspace is limited in new developments by financial pressures to use as much land as possible for housing, offices or other built infrastructure. In contrast, it is in increasing demand by a population supposedly with more leisure time, or by those who suggest that it is an essential element of such new developments.

If only it were that simple! Greenspace is now fought over by conservationists who demand space to encourage biodiversity in the urban context, by landscape architects who wish to improve the urban aesthetic and promote quality of life for urban dwellers and developers who see conspicuous greenspace as a means of increasing land and house prices. In an increasingly risk-averse society, especial attention has to be paid to contaminants held within the soil, spoil or made ground on brownfield land, either for their effects on important ecosystems located on such land, on water issuing from it, or more particularly on exactly the people that the greenspace was created for. Others point out that vegetation can filter pollutants from the atmosphere, so reducing breathable concentrations, though less attention seems to be given to their ultimate fate. Vegetation can help reduce wind speeds, and thereby help in energy conservation. There are even those who suggest that every little additional carbon sequestered by vegetation or the soil beneath it will make a small contribution to the effects of greenhouse gases on climate change. There are a myriad of good reasons why greenspace is important in the urban area.

Against this backdrop of competing and sometimes conflicting demands on urban greenspace, it will not be easy to find a universal or widely accepted meaning for the term ‘sustainability’, or for Captain Subr:im to steer an honest bearing through these various winds and currents. No wonder he is looking a little green and feeling a tad queasy. What should he do and think? He is surely under pressure to do and think something, even if it’s inevitably going to be updated and improved in the future.



In a non urban landscape, it might seem relatively easy to come up with a definition, though there is still much room for debate. Certainly, an examination of this conundrum for forestry suggests that scale, both temporal and spatial, are important considerations. At a local level, Kimmins (2001) has suggested that sustainability should be considered as ‘a non declining (or non-increasing) *pattern* of change’ [my italics]. This definition allows inevitable change in ecosystem conditions to be accommodated, so long that it can return to a long-term mean condition, or even a more desirable one, some time in the future. Note here, that there is already an expert or societal element within this extended definition – ecological sustainability must be susceptible to re-interpretation. There is nothing evangelical here, thank god. At a landscape level, Kimmins suggests there is even more flexibility in definition and assessment of sustainability.

This essentially, but not exclusively, biological definition allows for inputs and outputs into the system, and this is an essential point – sustainability isn’t nor can’t be centred on the conservation of the system at a point in time. As we shall see, it

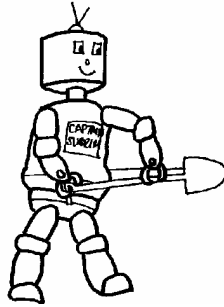
can be useful in an interpretation of sustainability in the urban context, though it may be perceived by politicians, socio-economists and some components of the community as being too narrow a definition when viewed against modern definitions of sustainable development.

So how can biologists or ecologists perform a useful and contextual service in the definition of sustainability in the urban landscape? The most important is to be the mouthpiece of the plant! Many will want to take on this role, but it is vital that those who understand the complexity and dynamic nature of plant-site interactions make their voices known. At its most basic, such a group will need to ensure that the minimum requirements for the chosen vegetation are met at the time it is sown, planted or otherwise established. That the substrate is able to supply water, air, nutrients, and anchorage in adequate, but not excessive amounts without being toxic. (Such indices could, perhaps, be distilled into one class of sustainability criteria.) However, restoration ecologists would rightly point out that this approach, although important, does not recognise the need to ensure that the newly constructed landscape, including 'soil'-scape, must function over time such that the vegetation is likely to remain or develop towards a desired or expected state. Will there be the adequate provision of nutrients, as the vegetation develops and/or once the initial injection via artificial fertilisers wears off? Will the vegetation withstand pestilence or other acts of god? – well, normal extremes of climate and inevitable pests and diseases at any rate! In addition, of particular relevance on brownfield land is the role of vegetation in the uptake and possible recycling of contaminants to the detriment of the ecosystem as a whole, and the people that might be exposed to them as a result of visiting such greenspace. These considerations should, therefore, generate further sustainability criteria, though much work may be required in their development before they can be usefully used. In contrast, perhaps certain types of vegetation or particular species can help fix, stabilise or even destroy some types of contaminant. Here vegetation can be used to advantage as part of a remedial solution.

To return to the non urban definitions of sustainability – how well does the previous discussion match up? Certainly there is an appreciation of the dynamic nature of ecosystems, though in the urban context it is less common to allow for the timescales at which natural evolution takes place. So, for example, one sees trees planted that are several metres taller than nature would dictate, and species chosen that might form a component of woodlands several decades or even centuries after they had originally been planted. These decisions often ultimately disappoint, and are ecologically unsustainable.

But the main issue for Captain Subrim, as opposed to his purely ecological fellow officers, is to develop and promote an understanding of vegetation on urban brownfield land whilst also embracing the socio-economic arguments for choosing such vegetation. In this landscape, hard ecological principles determined in natural or semi-natural ecosystems may need tempering. Urban timescales are very different from 'natural' ones, and the spatial scale over which change can occur is also usually much smaller. And most crucially, the principal drivers which will influence the type of vegetation, its management and its ultimate fate

are human. Provided these are taken on board by Captain Subrim when planning his voyage of discovery, there are real opportunities for success. In fact, it seems likely that a definition of urban greenspace sustainability will not be too far from that proposed by Kimmins, though it will inevitably allow for greater human inputs into the greenspace system – not unreasonable given the greater expectations from it.



Reference: Kimmins, J.P. (2001). Visible and non-visible indicators of forest sustainability: beauty, beholders and belief systems. In: Sheppard, S.R.J. and Harshaw, H.W. (eds) *Forests and landscapes: linking ecology, sustainability and aesthetics*. CABI Publishing, Wallingford, 43-56.