<u>**Working Paper**</u>

Characterising Urban Environmental Thinking:
Towards Street Trees and Practical Sustainability

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Summary

This paper is based on a review of post-1975 monographs dealing with either the urban environment or with urban forestry and/or street trees. I conclude that there is an emphasis either on: (1) the botanical characteristics and the rather utilitarian management of street trees, or (2) on a much broader discussion of the urban environment and its throughputs, in terms of, for example, energy, materials etc. The latter is, broadly speaking, a UNESCO perspective (see e.g. Boyden et al., 1981). Both approaches have their own validities. This urban environmental 'dualism' has been with us for many years. In some ways it makes it very difficult to view 'out of the box' and into the new, at times controversial horizons, which sustainability, especially urban sustainability, should now embrace. This paper therefore uses the listing of monographs as a background or 'stepping stone' from which to go further. Specifically, I explore the example of linking street trees with a more radical urban sustainability: I suggest that these new avenues are badly in need of exploration.

1.0   Introduction

It is an intriguing task to chart the history of urban environmental research, especially in the form of monographs (e.g. published books, etc.). It is probably fair to say that a monograph reflects, in general, a great deal of work by author(s) who, by and large, are reflecting the prevailing paradigm of urban environmental research thinking. However, it is probably also true to say that the intensity of their research efforts means that their efforts become concentrated within a very specific area of the urban environment.

I have characterised urban environmental thinking, from the mid-1970s- to the present day as a useful way of exploring just what the emerging and current emphases were, within the urban environment. This will then lead, via a 'stepping stone' into the specific issue, implied in the title, of how to *connect street trees with sustainability,* in new and radical ways.

Therefore, this article sets out to characterise the literature, and then move on, by using some of the latest thinking, especially around sustainability, and what it implies for the roles both of (e.g.) intuition and direct experience of the environment.

2.0   Methods

Twenty urban environmental books or monographs, emerging since the mid-1970s were examined. The list of books is not the total, but are considered to be the most important. Each book was characterised regarding its content (Table 1). A simple, two-category classification was used, and books' contents were characterised as to whether they covered (1) or (2) below, or indeed both categories (1. and 2.). The two characteristics tested for are shown below:

1. **Narrow / Forestry –focused**. Explanation: mainly botanically / forestry orientated, tending to ignore broader concerns such as the urban ecosystem, defined by both human and biological throughputs
2. **Broad / Ecosystem –focused**. Explanation: tending to be policy, governance, and human ecosystem orientated, tending to ignore forestry and botanical research

3.0 Results: The Characterisation of post-mid 1970s Urban Environmental Thinking

Table 1 summarises recent urban forestry and urban environmental monographs, an extended version is included as an Appendix.

Table 1. Characterising urban environmental thinking.

References (in date order):	Monograph Focus	
	Narrow / Forestry	**Broad / Ecosystem**
	(forestry / botany / utility of)	*(human urban ecosystem, governance and policy-making)*
1. Grey and Deneke, 1978: *Urban Forestry*	Emphasised	**N/A**
2. Laurie, 1979: *Nature in Cities*	Emphasised	Partly emphasised
3. Boyden et al., 1981: *The Ecology of a City and Its People*	**N/A**	Emphasised
4. Douglas, 1983: *The Urban Environment*	Emphasised *****	Emphasised *****
5. Grove and Cresswell, 1983: *City Landscape*	Emphasised	**N/A**
6. Hough, 1984: City *Form and Natural Process*	Emphasised *****	Emphasised *****
7. Spirn, 1984: *The Granite Garden: Urban Nature and Human Design*	Emphasised *****	Emphasised *****
8. Hibberd, 1989: *Urban Forestry Practice*	Emphasised	Emphasised
9. Sukopp, Hejný, and Kowarik, 1990: *Urban Ecology*	Emphasised ***	Emphasised ***
10. Breheny, 1992: *Sustainable Development and Urban Form*	**N/A**	Emphasised
11. Stren, White and Whitney, 1992: *Sustainable Cities*	**N/A**	Emphasised
12. White, 1994: *Urban Environmental Management*	**N/A**	Emphasised
13. Gilbert et al., 1996: *Making Cities Work*	**N/A**	Emphasised
14. Archibugi, 1997: *Ecological City and the City Effect*	**N/A**	Emphasised
15. Miller, 1997: *Urban Forestry (second*	Emphasised	Emphasised

edition)		
16. Atkinson et al., 1999: *Environmental Management in Urban Areas*	Emphasised	Emphasised
17. Forrest, Konijnendijk and Randrup, 1999: *Research in Urban Forestry in Europe*	Emphasised	**N/A**
18. Inoguchi, Newman and Paoletto, 1999: *Cities and the Environment*	**N/A**	Emphasised
19. Satterthwaite, 1999: *The Earthscan Reader in Sustainable Cities*	**N/A**	Emphasised
20. Kuser, 2000: *Urban and Community Forestry in The Northeast* [United States]	Emphasised ***	Emphasised ***

- **Scoring system:** Books which successfully straddle both areas are scored *****, those which do so to a lesser extent, are scored ***. N/A means not applicable, in other words, the topic was not dealt with.
- **Subject areas:**
  (1) Narrow / Forestry: –mainly botanically / forestry orientated, tending to ignore broader concerns such as the urban ecosystem, defined by both human and biological throughputs.
  (2) Broad / ecosystem. Policy and human ecosystem orientated, tending to ignore forestry and botanical research.

It is concluded that the books do indeed reflect (broadly) two types of outlook:

1. Urban forestry or urban plant ecology works which deal with the establishment of trees, their maintenance and occasionally, cost/benefit analysis and community involvement with the trees or urban forest / landscape, together with the administration of urban forestry programmes
2. Urban environmental or urban ecosystemic accounts which tend to emphasise much more resource use, urban politics and policy, sustainability, and urban local authority governance. Human resource throughputs are stressed as the dominant processes within the urban ecosystem. Some novel and useful concepts have evolved through this route.

Occasionally there are books which successfully integrate both of the above perspectives.

This then constitutes the paradigm, or perhaps the two paradigms, within which urban environmental work is carried out. It is both valuable and necessary work. Nevertheless, it does form a sort of 'box' within which people think or perceive the urban environment, probably at both academic and personal level. Is thinking then, within the 'box' good enough for what sustainability now demands of society, and how is the very practical link between street trees and sustainability to be properly made?

4.0   Discussion: Critiquing Street Trees and Sustainability [unreferenced at present]

It is accepted that sustainability is a contested field, where definitions, involvements and outcomes are by no means prescribed or predictable.

Nevertheless, I will assert from the outset that, by broad agreement, the presence of street trees is regarded as being of great benefit to residents, and indeed to the biology of cities more generally (numerous citations here).

Therefore, it follows that street trees need promoting so that ultimately the vegetative green of cities, even in the most built up areas, is widespread and of good quality: in other words, so that it is *assured,* by some way or means, for future generations. However, despite the encouraging and in some cases, valuable, rhetoric of the monographs in Table 1, it is apparent that we are still, within the UK, losing urban street trees due to factors a)- e) identified below (numerous citations).

4.1   Utilitarian Valuation and Destruction

The preservation of street trees has been argued for by means of: a) their economic value to residential houses (e.g. Helliwell, CITYgreen etc.); b) their value in pollution control (e.g. Freer-Smith, etc.); c) their value for biodiversity (as part of biodiversity, or forming parts of biodiverse networks); c) their role in minimising climate change via carbon sequestration; and d) their supposed aestheic value, or their benefits to health.

While these reasons are all well-intentioned, and certainly they are to be welcomed, they are all *rather utilitarian criteria to adopt*. What is interesting is that equally utilitarian values are adopted in disposing of street trees. Self-censorship is also often evident in failing to identify these factors, and make them plain: For example,

> a) How often does (unwanted) road-building remove street trees?
> b) How often do insurance considerations result in their removal from gardens, sometimes unjustifiably?
> c) How many are lost from housing developments in urban parks?
> d) How many are lost by simple Tree Preservation Order (TPO) infringements.
> e) How many are lost through proactive touting for business by tree surgeons?

It is important to ask: just what are the critical political and practical factors giving rise to a)-e)? Are they ever identified? If not *why not*? Does dealing with these causal factors in any way, shape or form become part of the urban person's *modus operandi*. If not, (again) why not? How many times is the argument set out, clearly and *explicitly,* in the open, for all to see and debate: it can sometimes be reduced to something as simple as street trees versus concrete.

4.2   Sustainability Perspectives [unreferenced]

So: where to, next? More important than these, what I have called 'utilitarian', debates, especially in fostering street tree appreciation and the general enhancement of the street tree scene, may be the *spiritual, emotional*, or *political* value which town and city dwellers place on their trees (this is not necessarily a novel concept: [Garten und Landschaft + recent sustainability citations]). However, these values, precisely because they constitute what has been referred to by UNESCO in the past as 'intangibles' may not be easily subject to mechanistic analysis (despite its critics, e.g. Beck) with meaningful results. They therefore may prove to be woefully unquantifiable and therefore, may be perceived, wrongly as it happens, as invalid. Of course, the positive arguments justifying the presence of street trees identified in a)-d) above, do come quite close to spiritual

considerations, and they do come close, in some cases, also, to identifying the political factors behind both the preservation and the destruction (factors a)-e) above) of street trees.

However, a number of valuable and very recent sustainability critiques have given rise to a need to address these controversial viewpoints head-on. They also show valuable means of how the *political* and the *spiritual*, or the *moral*, can be dealt with, and connected to the more utilitarian aspects. [Expand here:] For example, the need to consider future generations' interests. This has political implications: using the current case of street trees, namely the need to consider personal politics around the preservation, and emotional enjoyment of street trees. In other areas, some sustainability authors have been heavily critical of scientific discourse, saying that it is unfit to deal with the civilisational crisis of our current 'anti-sustainability'. Whatever the merits, and rights and wrongs of this view, I would argue that it needs to be taken into consideration.

Among, therefore, other considerations emerging from a sustainability perspective regarding street trees are the following. Here, 'street trees' are used as a symbol for the whole field of sustainability: [Key points which need expanding on:]

- What rights do street trees have, and should these be greater than the rights of the built environment to go where it wishes? (In other words, how often is the need for the street tree considered *greater* than the need for the road, the wall, or the need for housing.)
- How might such rights be enlivened politically, within local authorities, or local communities?
- What is the *case or the right* for the built environment to proceed where it wishes in the first place? Indeed, are there *real needs* driving its development, or are they spurious? Have the supposed needs even been investigated, in any depth?
- What is the role for wisdom and intuition, and affection even, from local people in the preservation of street trees? How might it be drawn on and used positively, to better protect street trees?
- How are people politicised towards caring about street trees? Could this tendency be enhanced, by any means, and against the prevailing tendency for 'utilitarian' destruction?
- How are people to be trained not just to accept the concepts or teachings of sustainability at theoretical level, but what are the means of getting them to enact sustainability in their daily lives? How, in other words, are they to become sustainability advocates?
- Finally, how are all of the connections in what has been described above, to be revealed and acted on: for example, householders who dislike trees to the point of killing them, quite deliberately; multinational insurance companies who have no environmental considerations with regard to street trees; planning decisions which favour destructive developments.

These are among the aspects which need consideration to truly connect street trees with the notion of sustainability.

References

Archibugi, F.(1997). *The Ecological City and the City Effect: Essays on the Urban Planning Requirements for the Sustainable City. Studies in Green Research*. Ashgate, Aldershot.

Atkinson, A., Dávila, J.D., Fernandes, E., and Mattingly, M.(1999). *The Challenge of Environmental Management in Urban Areas. Ashgate Studies in Environmental Policy and Practice*. Ashgate, Aldershot.

Boyden, S., Millar, S., Newcombe, K. and O'Neill, B.(1981). *The Ecology of a City and Its People: The Case of Hong Kong*. Australian National University Press, Canberra and London.

Breheny, M.J.(1992). *Sustainable Development and Urban Form. European Research in Regional Science*. Pion, London.

Douglas, I.(1983). *The Urban Environment*. Edward Arnold, London.

Forrest, M., Konijnendijk, C.C. and Randrup, T.B.(editors) (1999). *Research and Development in Urban Forestry in Europe: Report of COST Action E12 'Urban Forests and Trees' on the State of the Art of Urban Forestry Research and Development in Europe*. EUR 19108 EN. Commission of the European Communities, Luxembourg.

Gilbert, R., Stevenson, D., Girardet, H. and Stren, R.(1996). *Making Cities Work: The Role of Local Authorities in the Urban Environment*. Earthscan, London.

Grey, G.W. and Deneke, F.J.(1978). *Urban Forestry*. Wiley, New York and Chichester.

Grove, A.B. and Cresswell, R.W.(editors) (1983). *City Landscape: A Contribution to the Council of Europe's European Campaign for Urban Renaissance*. Butterworths, London.

Hibberd, B.G.(editor) (1989). *Urban Forestry Practice. Forestry Commission Handbook No. 5*. HMSO, London.

Hough, M.(1984). *City Form and Natural Process: Towards a New Urban Vernacular.* Croom Helm, Beckenham.

Inoguchi, T., Newman, E. and Paoletto, G.(editors) (1999). *Cities and the Environment: New Approaches for Eco-Societies*. United Nations University Press, Tokyo.

Kuser, J.E.(2000). Handbook of Urban and Community Forestry in The Northeast. [United States] Kluwer / Plenum, New York and London.

Laurie, I.C.(editor) (1979). *Nature in Cities.* Wiley, Chichester.

Miller, R.W.(1997). *Urban Forestry: Planning and Managing Urban Greenspaces. Second edition*. Prentice-Hall, Upper Saddle River, New Jersey.

Satterthwaite, D.(editor) (1999). *The Earthscan Reader in Sustainable Cities*. Earthscan, London.

Spirn, A.W.(1984). The *Granite Garden: Urban Nature and Human Design.* Basic Books, New York.

Stren, R., White, R. and Whitney, J.(editors) (1992). *Sustainable Cities: Urbanization and the Environment in International Perspective.* Westview Press, Boulder, Colorado and Oxford.

Sukopp, H. and Hejný, S. and Kowarik, I.(editors) (1990). *Urban Ecology: Plants and Plant Communities in Urban Environments.* SPB Academic, The Hague.

White, R.R.(1994). *Urban Environmental Management: Environmental Change and Urban Design*. Wiley, Chichester.

Appendix: Unedited Table

Urban environmental research, as illustrated by the main indicative subject areas emerging in monographs (this has been condensed into Table 1). I have given books which relatively successfully straddle both parts of the classification, a 5-star rating, e.g. *****, those which do so to a lesser degree, 2-stars **.

	Monograph Focus	
References (in date order):	**Narrow / Forestry** *(forestry / botany / utility of)* –mainly botanically / forestry orientated, tending to ignore broader concerns such as the urban ecosystem, defined by both human and biological throughputs	**Broad / Ecosystem** *(human urban ecosystem, governance and policy-making)* –policy and human ecosystem orientated, tending to ignore forestry and botanical research
Grey and Deneke, 1978: *Urban Forestry*	-history of urban forestry -distribution and ownership -composition -benefits -environment (space, soils, people, etc.) -management -finance and administration -education and training -urban forestry programs	<u>N/A:</u> -broader aspects of the urban ecosystem *per se* are not dealt with, though Grey and Deneke are dealing with the edges of this area, in this pioneering book
Laurie, 1979: *Nature in Cities*	-natural environment -design aspects -urban woodlands, commons, town parks, etc. -urban species –birds, fish etc.	-human – nature relationship -relationship of naturalists with the built environment -landscape planning
Boyden et al., 1981: *The Ecology of a City and Its People*	<u>N/A:</u> -nature *per se* is not dealt with	-urban ecological perspectives are mainly energy-based, and consider historical trends -nutrients and energy supply -energy and transport system -energetics of food production -some social relationships and important 'intangibles' -housing and population -air pollution and mortality -'biosocial' surveys of health, well-being, crime, etc. -finally, the future of human settlements
Douglas, 1983: *The Urban Environment*	***** -biogeography and urban habitats	***** -food supply, raw materials -different biological views of the city

		-energy and water balances of the city -geomorphology -disposal of wastes and surplus materials -urban health and disease -managing the city to reduce environmental hazards -people, governance and the ecological future of cities
Grove and Cresswell, 1983: *City Landscape*	-nature -parks -landscape	There is no consideration of urban ecosystems, only of: -aesthetic values -urban lighting and 'street furniture'
Hough, 1984: City *Form and Natural Process: Towards a New Urban Vernacular*	***** -urban plants and wildlife	***** -urban ecology, the contradiction in values -climate -water -city farming -making connections -perceptions and cultural values
Spirn, 1984: *The Granite Garden: Urban Nature and Human Design*	***** -urban forestry -vegetation -pets and pests -nurturing urban biodiversity	***** -air quality -designing wildlife habitats -viewing the city holistically, in terms of its resource consumption
Hibberd, 1989: *Urban Forestry Practice. Forestry Commission Handbook No. 5.*	-short history of urban forestry -preparation and planting -aftercare and management -the potential for timber	-involving the public -community events and projects
Sukopp, Hejný, and Kowarik, 1990: *Urban Ecology: Plants and Plant Communities in Urban Environments*	*** -an in-depth plant ecological account of urban areas, including synanthropy, lawns, bryophytes, mycoflora, migration of plants, and species/area plus species/inhabitant relationships	*** -views of both 'human-orientated' ecosystems and the role of urban habitat mapping are given, in a critical paper, which, whilst in a book about plant ecology, acknowledges that concerns are broader than this from the point of view of urban ecosystems
Breheny, 1992: *Sustainable Development and Urban Form*	<u>**N/A:**</u> -nature *per se* is not dealt with	-concentration is on sustainability, planning and arguments over urban form, e.g. -political prospects, transport, Combined Heat and Power (CHP), the property market, carbon dioxide (CO_2) emissions, communications technologies
Stren, White and Whitney, 1992: *Sustainable Cities*	<u>**N/A:**</u> -nature *per se* is not dealt with	-in 'a comparative approach to cities and the environment' nature and forestry are ignored -the book is geographical,

		urbanisation orientated -some indicative headings follow: -carrying capacity and city metabolism -sustainability of settlements -housing, waste and cities as contributors to the global warming (via CO_2 emissions)
White, 1994: *Urban Environmental Management: Environmental Change and Urban Design.*	**N/A:** -nature *per se* is not dealt with	-urban environment -urban metabolism -urban pathology -the ecological city -Toronto impacts
Gilbert et al., 1996: *Making Cities Work: The Role of Local Authorities in the Urban Environment*	**N/A:** -nature *per se* is not dealt with	-mainly local government orientated, the book's main theme is that local government must enact sustainability in a participatory and inclusive fashion -it deals with capacity-building, political change, and partnerships between cities
Archibugi, 1997: *Ecological City and the City Effect*	**N/A:** -nature *per se* is not dealt with	-degradation / recovery of the urban environment -views of urban ecosystems -cities and open spaces -new conceptual views of urban ecosystems -the Italian Government's 10 year urban environment programme (Decamb)
Miller, 1997: *Urban Forestry (second edition)*	-the urban forest -appraisal and inventory of urban vegetation -street tree inventories -urban natural resource inventories -planning and urban forestry -management of street trees -management of park and open space vegetation -funding and administration -usage and values of urban vegetation	-a brief urban history -social needs and values of urban society
Atkinson et al., 1999: *Environmental Management in Urban Areas*	-urban parks programme in Chile	-policy and politics -metropolitan urban strategies -waste management -Local Agenda 21 in the UK -African and Latin American perspectives
Forrest, Konijnendijk and Randrup, 1999: *Research and Development in Urban Forestry in Europe*	-objectives, form and functions of urban forests and urban trees -selection and establishment -management -geographical accounts from	**N/A:** -broader aspects of the urban ecosystem *per se* are not dealt with

	European countries	
Inoguchi, Newman and Paoletto, 1999: *Cities and the Environment: New Approaches for Eco-Societies.*	**N/A:** -nature *per se* is not dealt with	-ecological 'rules' of a sustainable society -sustainable urban societies -urban environmental management -governance -life-cycle assessment -rainwater
Satterthwaite, 1999: *The Earthscan Reader in Sustainable Cities*	**N/A:** -nature *per se* is not dealt with	-indicators for sustainable development in cities -sustainability and poverty -sustainability: reform or transformation? -creating healthy cities in the 21st century -building and designing with nature (at very broad conceptual level)
Kuser, 2000: *Urban and Community Forestry in The Northeast* [United States]	*** -origins of urban forestry -costs / benefits / finances and budgets -tree inventories -establishing trees and selecting stock -planting, pruning and maintenance -hazard tree inspection -integrated pest management -tree appraisal, removal and management for wildlife	*** -community planning and involvement -examples of projects -managing urban ecosystems: a look to the future of urban forestry (includes the 'rural – urban continuum', and 'sustainability as a central issue in the 21st century')