THERAPEUTIC PLANNING IN OUR URBAN FABRIC – FROM CITY BEAUTIFUL TO

THE HEALTHY CITY

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Paper presented at the Future of Places Conference

Stockholm, Sweden

July, 2015

ABSTRACT

Therapeutic Planning in our Urban Fabric – From City Beautiful to the Healthy City

Through an analysis of the literature on the effects of greenspace on human health, combined with case studies on home zones, this paper promotes a concept of therapeutic urban planning. It also examines the idea of public space, and how much of our public space has been co-opted by the vehicle oriented planning methods that have dominated North American city planning. Therapeutic planning includes not only the parent concept of biophilia, but the related concepts of people-based planning and placemaking as it has emerged in recent planning literature. Placemakers are environmental psychologists for whom the physical and social aspects of urban planning are inextricably tangled.

Many cities recognize that access to green space is an important part of city planning, but these plans are usually not guided by the idea of providing a public health benefit. However, the research offers measurable evidence that stress, anxiety, depression, and the morbidities that result from them can be improved by exposure to biophilic urban environments. Urban biodiversity and biophilic design go beyond placemaking, and suggest that we can change our present transportation and land use planning decisions to incorporate healing spaces into our urban fabric that address human health concerns and human well-being. Our idea of "living" has become synonymous with "enduring" daily physical and mental insults that challenge our wellbeing, burden us with depression and anxiety, and shorten our lives.

The concept of placemaking should expand to include the idea of creating infrastructure that incorporates healing places. The placemaker’s desire to minimize auto dependence and achieve equity when designing places to live, work and play must start with the recognition that vehicle oriented planning has resulted in a parsing of the public realm that has been inherently inequitable. The need for interdisciplinary planning has never been more urgent. The number and scope of problems that are faced by cities around the world do not lend themselves to solutions easily addressed by the rigid processes and procedures that have guided urban planning to date.

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Therapeutic Planning in our Urban Fabric – From City Beautiful to the Healthy City

***Introduction***

The decades we refer to as the City Beautiful movement, emerging in the 1890s and lasting into the 1920s, were grounded in an idea that persists today – that the built environment must be shaped by human social and psychological needs. The idea of placemaking or people-based planning, is no less an expression of the foundational ideals of City Beautiful. Placemakers are environmental psychologists for whom the physical and social strings of urban planning are inextricably tangled.

Into the19th and 20th centuries, Sir Ebenezer Howard’s Garden City design also suggested that city building could be twinned with social welfare through urban design, but like the City Beautiful ideal, the interdisciplinary approach to creating environments for humans only tentatively and briefly guided city building efforts before they were lost in the international and modern architectural styles of the post-war years.

Architect Daniel Burnham brought us the “White City” (Larson, 2003), but he also expressed an early environmental consciousness that we have yet to realize. “Up to our time” Burnham said, “strict economy in the use of natural resources has not been practiced, but it must be henceforth unless we are immoral enough to impair conditions in which our children are to live” (Ibid, p.378). Driven in large part by threats to infrastructure caused by climate change, Mayor Bill de Blasio has recently released One New York: The Plan for a Strong and Just City, which echoes the century old environmental consciousness of Daniel Burnham (City of New York, 2015). The struggle to imprint the human condition on urban planning is a theme often repeated.

To say that we have not made progress in city building over the last hundred years would be a misstatement, but it is at the very least ironic to have our concerns about environmental stewardship echo through the corridors of urban planning through time. Yet, there is a sense of problems compounded when we approach modern city design. According to the United Nations, cities continue to be challenged by shortages of affordable housing and basic services, traffic congestion, and declining infrastructure (United Nations, 2012). The problems that we recognized one hundred years ago but never solved, beg the question of whether we should expect urban design to solve these problems at all. The general goal of addressing human health concerns and human well-being seems to simultaneously inspire us and bedevil us.

## The North American City: The Background

According to the United Nations, in the six decades since 1950, the world has seen its population shift from predominantly rural, to predominantly urban. In 2014, fifty-four per cent (54%) of the world’s population was identified as urban. Urban populations are projected to keep growing, so that by 2050 the world will be one-third rural (34 %) and two-thirds urban (66 %) (U.N. World Urbanization Prospects, 2014, p.7). Migration to urban areas has been seen around the world, but it is in North America that we have *persistently* seen the highest percentages of urban populations (Ibid, p. 9) (my emphasis).

In 2010, the UN estimated that 80.6% of Canadians lived in urban areas, a percentage predicted to rise to 87.9% by the year 2050 (U.N. Population Fund World Urbanization Prospects: The 2009 Population Revision Database). In the United States, 82.3% of its citizens now live in urban areas, with a projected increase to 90.4% by 2050 (Ibid). Migration to cities and urban centres raises important questions about how our cities are built, the quality of life they offer their citizens, and more importantly, whether there is equal access to the resources offered by cities.

Striving for equity in city planning is no small aspiration – it is a requirement for sustained peace, order and civility in community relations. The issue of equity has been missing from our discussions on public space. With the advent of motor vehicles, we accepted a reduction in the amount and quality of public space – perhaps without realizing it. While all urban space is shared between human and non-human agencies, the motor vehicle, more than any other urban phenomenon, has corrupted our enjoyment of public space.

The focus in North America has tended to favour road transportation over all other modes, and this has been a large factor in the economic success of cities in North America. Roadways are an invitation to others to come to the city to trade, and larger road networks accommodate increased numbers of factors of production. A large city of thousands and even millions of workers cannot exist without a vast and complex transport system that permits increased movement between population centres and creates links between housing, commercial, and public space within each population centre (Rodrigue, 2010).

However, this choice has led to massive consumption of land area, not only caused by road infrastructure itself, but seen in ancillary vehicle needs, especially parking lots and streetside parking spaces. As a society we have tacitly agreed to give up much of our public space as no more than a conduit for commerce. Although there have been recent attempts to incorporate the needs of other users, such as cyclists and pedestrians on the roadway, these attempts are often unsafe and unhappy compromises – the impulse to include others needs considerable nudging at times.

Paradoxically, people themselves have encouraged the expansion of local road networks by expressing a preference for single family homes that consume agricultural land, a desire to live at a distance from their workplace in order to be buffered from industrial and commercial activity, an expectation that public utilities will be provided even at great distance, and a reluctance to use public transit. These choices not only cause and reinforce economic inefficiency, but also cause environmental degradation.

Vehicle oriented transportation infrastructure disrupts pedestrian linkages and reduces transportation choices. In turn this limits domiciliary choices, particularly for citizens who do not have access to cars. These and other external costs caused by transportation systems (air pollution, delays caused by congestion, health costs due to accident and injury), represent significant economic, social and environmental costs that ratepayers and all levels of government are less willing to assume. Considerations that currently guide transportation planning - like traffic volume, time taken for travel, cost of trip, speed and level of service do not consider the land use context of the surrounding environment and this hampers efforts to design multi-user, living streets (Model Design Manual for Living Streets, 2011).

The emphasis on planning cities as commercial enterprises has meant that humans have had to adapt to an increasingly crowded and hostile environment. Citybuilding paths must now reflect a concern for the human condition. As our urban populations intensify, so too does the frequency with which we will encounter human frailty in the form of physical and mental disease and impairment. Meta-analytic data analysed by Peen, Schoevers, Beekman and Dekker (2013) suggest that among individuals living in cities, the prevalence of all psychiatric disorders is increased by 38%, mood disorders are increased by 39%, and anxiety disorders by 21% compared to the incidence in rural populations. In theory, addressing social isolation and anomie, and increasing human satisfaction in urban environments are ideas that have become part of the urban planning social and psychological matrix.

## Developing a Concept of Therapeutic Planning – Reviewing the Literature

The concept of therapeutic planning is based on the biophilia hypothesis popularized by Harvard myrmecologist and conservationist E.O. Wilson. Wilson suggested that we need daily contact with nature to be healthy, productive individuals, and have an innate need to interact with nature and appreciate the life sustaining qualities of all natural systems (Heerwagen, n.d.). Like the City Beautiful movement and Howard’s Garden City plan, the principles of biophilic urban design embrace an ecosystem approach to planning that embraces many disciplines including psychology, child development, community interaction and involvement, medicine and health, and environmentally sensitive design. There is a cross-disciplinary consensus that biophilic design produces positive health effects and adds value to public space.

There is a strong correlation between exposure to natural environments and health. Several studies report positive effects on psychological and physiological well-being when populations live in areas that focus on biophilic design. Maas, Verheij, Groenewegen, de Vries and Spreeuwenberg (2006), found that residents who lived in neighbourhoods with defined green space reported better general health than those who did not, and that improved health was particularly noticeable among the elderly, housewives, and lower socioeconomic groups. The Maas/Verheij study was a comprehensive study based on a large dataset of 250,782 Dutch respondents. It was designed to test the strength of the relationship between the amount of green space in neighbourhoods and reported effects on general health. The socioeconomic levels of the participants and their ages were also considered. The study revealed a positive and direct relationship between green space and better health that was equally strong at a 1 km radius and a 3 km radius around the green space. More interesting perhaps, was the effect of the *type* of green space measured, which indicated that both agricultural green and forested green spaces affected the perception of well-being The researchers also found a positive relationship between age and green space. While all age groups benefitted from exposure, youth and the elderly received the greatest benefits when the green space was within a 1 km radius. In general, the study found that the proximity of green space was more important in strongly urban areas.

Maas, Verheij, et al. (2006) also found that the relationship between green space and health is more beneficial for those in low socioeconomic strata, measured by the highest level of schooling achieved, income, ethnicity and coverage under public or private health insurance (in the Dutch context, coverage under private health plans is itself an indicator of higher socioeconomic status). The authors concluded that green space should have a more central role in urban planning, as it affects the health and well-being of the elderly, youth and those in lower socioeconomic groups – all of whom are less likely to have much choice in their neighbourhood of residence.

Mitchell (2008) also conducted a large study of 400,000 subjects, and found that while low income populations normally have higher rates of mortality, lower income populations that live in areas with large amounts of open, undeveloped land with natural vegetation have a lower mortality rate from all causes. Mitchell points out that “contact with natural environments is associated with reductions in stress, blood pressure, and promotion of healing” (Mitchell, 2008, p.1656), and that all-cause and circulatory diseases related to income deprivation are also lower in populations that live in areas with more green space.

Other studies have found that visiting green spaces, whether urban forests or city parks, have restorative effects on humans with sedentary lifestyles, chronic stress and coronary disease. A Swiss study by Hansmann, Hug and Seeland (2007) for example, found that stress levels, headaches and a sense of general well-being were positively affected by time spent enjoying green space. Grahn & Stigsdotter (2010), citing the World Health Organization’s observation that mental health disorders, physical inactivity and cardiovascular disease are expected to be the major cause of morbidity in the developed world by 2020, found that therapeutic environments in the form of urban parks, or open space with layers of natural features, was the largest factor in mental and physical health restoration among eight variables studied.

The Grahn & Stigsdotter (2010) study revealed interesting insights into the sensory aspects of green space preferred by people. Their research showed that in general, people prefer serene spaces that are shielded from noise and feel like places of refuge. This was followed by areas of space, areas of nature and areas that were rich in species. The lowest scores were achieved by the social benefits of green space, and large open park space with well-cut lawns that provide a vista.

In an earlier study, Grahn & Stigsdotter (2003) suggested that distance from urban green space has a negative effect on park usage. Study subjects who lived 50 metres or less from green space visited those spaces three to four times per week. Conversely, those who lived 300 metres from green space visited 2.7 times per week, while those who lived 1000 metres from green space only visited once a week. Neilson and Hansen (2007) also found that distance decay was a significant factor in the use of recreational facilities and the use of green space generally, concluding that “[f]or all types of green areas, summer and winter, there is a highly significant association between distance and use” (Neilson and Hansen, 2007, p.842). Grahn & Stigsdotter (2003) came to three conclusions: the closer urban green spaces are to one’s dwelling, the more often one will visit them; spending time outdoors in greened areas seems to be the most important singular factor affecting levels of stress; and a dwelling with direct access to a green yard or garden provides stress reducing health benefits similar to access to public green space. Whether someone has access to private green space raises the question of equity and accessibility in the urban matrix and will be discussed in a later section on home zones.

Ward Thompson, Roeb, Aspinall, Mitchell, Clowd and Millere (2012) conducted a small scale exploratory study of subjects facing socioeconomic adversity, either because of the characteristics of the neighbourhood in which they resided, or because of limiting factors in their personal economic circumstances. The study relied on salivary cortisol secretions as a biomarker of chronic stress. Cortisol, a hormone produced by the body in response to physical or psychological stress, was measured by saliva sampling. In addition, the study used a questionnaire that attempted to identify various levels of stress as reported by the study subjects. The green spaces captured in the data covered an array of green space types, including parks, woodlands, scrub and grasslands, but did not include private gardens. Significantly, Ward Thompson et al. (2012) were able to show that the relationship between stress and green space can be objectively measured, and reinforces subjective research that linked green space to cardiovascular mortality rates (Mitchell & Popham, 2008), stress, and psychiatric morbidity (Maas, Verheij, et al., 2009). It is also possible to see the relationship established when access, distance, and socioeconomic levels are included in greenspace studies. Teasing out whether urban morbidities such as mental illness and depression is more difficult when these variables are considered together, but the research suggests that they are in fact related.

Greenness has been associated with less stress and lower body mass index among adults (Nielsen & Hansen, 2007) better body mass index scores among youth (Bell, Wilson and Liu, 2008), and reports of improved general health (Mitchell & Popham, 2008). However, Neilson and Hansen (2007) observed that physical visits provide only a partial picture of the benefits of green space and suggest that there may be general stress reduction and salutogenic benefits derived from the presence of greened areas. As Ward Thompson, Roe et al. suggest, “[u]nderstanding the mechanisms by which natural environments contribute to stress reduction or restoration is important if this contribution is to be exploited for public health improvement” (2012, p.222).

As the body of research on nature’s ability to restore human physical, emotional and cognitive capacity grows, researchers encounter a new dilemma. From a public health and welfare perspective, there is ample justification for biophilia-driven environments. Many researchers in this field have tried to identify practices and tools that would ensure that biophilic designs have desired and predictable outcomes (Grahn & Stigsdotter, 2010; Ryan, Browning, Clancy, Andrews, Kallianpurkar, 2014), but the reality is, that design outcomes are not certain because they are tied very much to place. The specific greenspace characteristics that provide restorative benefits are not clear, and our traditional planning tools are inadequate to define them.

## Interdisciplinarity & Sharing Success

Planning good habitat for people includes satisfying a need for beneficial contact with nature within the city. In North America, and in many jurisdictions around the world, environmental assessments provide the ultimate authority for local governments and planners when environmental approvals are sought for urban development and/or road projects. They provide a process that informs decision makers of the risks, costs and benefits of proposed projects (Doelle & Sinclair, 2010). Major conflicts are not uncommon during the process, especially when decision makers and/or governments prioritize economic development over environmental protection, or when the process becomes mired in the conflicts between the “agendas of project proponents, interest groups, [and] political and bureaucratic agendas (often accompanied by media coverage and litigation)” (Hickey, Brunet & Allen, 2010, p.324).

Environmental assessments and other planning practices require evidential certainty and lack the intellectual space required for introducing new concepts. This has given birth to important community-generated movements like tactical urbanism, or guerilla urbanism, which encourage small scale experiments in community spaces. The evidence supporting therapeutic interventions in the urban matrix is strongly in favor of an integrated planning response. However, the cost of green initiatives also governs private and public architecture and public space amenities. Empirical and scientific support is growing for policies that target cause and effect between the built environment and conditions such as population obesity, proximity to recreation facilities and green space, stress and mental illness, walkability, barriers to access, and the destruction of community connections – all long term effects of an emphasis on cost based planning. Resistance is based on the idea that cost based planning should have *primacy* over other planning considerations (my emphasis) – especially when the known cost base items are short term and the unknown costs are long term. Or when the long term costs are unknowable until until a project is well underway or even completed.

Planners are increasingly expected to work within the contested and unknowable spaces caused by interdisciplinary demands. But understanding and appreciating their complexity is too large a task to be dealt with by a single discipline or profession. The emergent properties revealed by the interaction of different components of a system, the irreducibility of uncertainty, and contextual factors are hallmarks of the complex world faced by urban planners, even as they remain tied to their disciplinary habits of mind (Tippett, 2010; James et al., 2009[[1]](#footnote-1)). Examples of integration and humanistic design that combine layers of meaning and richness of detail do exist, often carved out in political standoffs. The single-most important question that should be addressed by planners and placemakers at this point is not whether we should include green urban spaces, but rather, how do we increase the frequency of greenspace encounters in the urban landscape? The concept of home zones is an example of a successful application.

***What Is a Home Zone?***

A home zone is based on the Dutch concept of woonerf, which literally translated means residential yard. It is a reminder that streets are in the public realm, and that all users may lay claim to them. A woonerf, or home zone (I use these terms interchangeably), rejects the idea of streets as mere conduits for automobiles, and seeks to create a balance between vehicle access and residents’ desire for privacy and safety. Instead of segregating all forms of transportation, the home zone physically alters the design of a street using unified street surfaces, gateway treatments, trees and gardens, play areas and outdoor seating which combine to create curves and often, short sight lines. Severe speed reductions, usually 10 mph, are the norm in these zones (Voorhees, 2004, p.5).



## Figure 1 Woonerf - Entrance & Signage

The home zone model offers a holistic solution to the problems associated with traffic in residential neighborhoods not only by reducing speed, but by changing the way that streets are used and improving the quality of life in residential streets. There is no single 'blueprint' for a home zone and any design elements are adaptive rather than prescriptive, particularly when accommodation must be made for disabled people (JMU Access Partnership, 2007). Accessibility for people with disabilities has become a design imperative in many North American jurisdictions, affecting everything from building design to garden design.

### Placemaking and Re-claiming Public Space

In response to growing traffic volume and speed on their residential street, a group of Dutch citizens tore out the street paving and stacked it along the street. These new man-made barriers forced drivers to either avoid the street altogether, or navigate very slowly through the neighbourhood. The local government’s angry, but idle consternation gave birth to the woonerf as a new street model that eventually became codified into the Dutch national street code (Lyden & Garcia, 2015). Other jurisdictions, particularly in North America, have stopped well short of institutionalizing such placemaking and place sharing tactics. Most North American cities have attempted to address the problem of traffic/human conflict by using various traffic calming measures, but traffic calmed streets have not resulted in a more equitable use of public street space, nor have they resulted in enhanced use by other users, while home zone treatments clearly alter the user balance (Biddulph, 2012).

Observing that “residential streets should serve the residents who live on them rather than simply facilitating movement for those passing through” (McBeath, 2009, p.2), similar benefits of home zones have been recognized in a few North American jurisdictions. Voorhees discusses the adaptability of the home zone model and the benefits of improved safety, higher property values, increased social interaction among neighbours, and more efficient and egalitarian use of the public realm that have been realized in European home zone applications (Voorhees, 2004).

An aspect of home zones not broached in the literature is the opportunityto integrate home zones and biophilic principles. Most home zone construction focuses on hard surface amendments like types of pavement, installed seating and constructed gateway treatments. In some, built landscaped areas serve dual purposes, such as creating curves and adding seasonal plantings. There is at least one example of a home zone that includes a community garden. The design and position of play areas for children is part of good home zone design.

### The Greening of Small Spaces

In an exploratory study that attempted to assess the effect of courtyards on noise perception among residents, Gidlof-Gunnarsson and Ohrstrom (2010), found that high quality courtyards diminished residents’ perception of traffic noise when compared to residents who did not have high quality courtyards. High quality courtyards were defined as having shrubs, bushes trees and other vegetation, outdoor furniture, play areas for children and an abundance of sun during the day. Of all residents sampled, those who had high quality courtyard amenities had a diminished perception of noise levels and were more likely to rate their residential area as very good. GidlofGunnarsson and Ohrstrom (2010) suggest that this response is perhaps due to the influence of an aesthetically pleasing, natural environment. The ability of courtyard, or pocket, gardens to create biophilic connections in small spaces, has been visited several times in the literature.

Nordh, Hartig, Hagerhalla and Fry (2009) also discussed the greening of small spaces in their study of the effects of urban densification on access to green spaces, questioning whether pocket parks, roof gardens and tree lined streets can have a restorative effect on urban dwellers. Evaluating variables such as hardscape, grass, ground cover, flowering plants, bushes, trees, and water, they found that all of these elements, to a greater or lesser extent and in various combinations, had a positive effect on study participants, even though the parks themselves were small. Although there were some methodological problems with this study, Nordh, Hartig et al. concluded that smallness does not eliminate “opportunities for restoration...[but may depend on] design and the components used to create the park” (2009, p.233). These findings coincide with the observations of Bell, Wilson and Liu above (2008), who found that as a variable, greenspace operated independently of residential density. Nordh, Hartig et al. (2009) seem to suggest that careful greenspace design even in intense residential areas has salutogenic benefits.

However, greening small spaces is not an ecosystem approach. In the Americas, box-type developments, both residential and commercial, are often approved through a formal planning process that includes minimum landscape requirements. Since the cost of the land often represents the most expensive part of these investments, most buildings are built as cheaply as possible which in turn means that little money is spent on landscape, unless planning law requires it. However, even minimum landscape requirements may be traded off for cash, a contribution of land for public use, or other measures that minimize or even eliminate the greenspace obligation for private developers. Through these measures, greenspace availability becomes the sole expense of the public, and is limited to publicly owned lands. The continuity that is required to produce habitat and ecosystems is lost unless there is a community approach to conservation that seeks to avoid this. This is a fundamental principle that all planners and placemakers must understand if they hope to see urban biophilia flourish.

### Low Regret Measures

Investments in public infrastructure are increasingly made within a framework of threat. Unknown and unforeseeable threats from natural disasters, climate change, the ease of world-wide disease transmission and other causes have made many of our approaches to urban design obsolete. There is a pressing need to incorporate greater flexibility into planning processes, and a corresponding need to use ecosystem and land use measures that take frailty and system failure into account (The World Bank, 2012).

The overall goal is a strategy under which flexible or so-called “low-regret” measures can be cost effective even in the face of uncertainty and risk. Urban resiliency and the ability of cities to withstand catastrophic events require integrated management of flexible systems – of water supply, transportation, sewage and waste disposal, urban greening and reforestation, population health, and political and community sharing. An integrated urban ecosystem approach includes *generating information for policy makers* that allow them to take advantage of trade-

offs and synergies that are generated within each system (Ibid) (my emphasis).



**Figure 1 Toronto Flood 2013**

It is not difficult to see that promoting biophilic environments for both human health and urban resiliency need be part of the urban policy and action arsenal. It is perhaps no accident that the work of myrmecologist E.O. Wilson informed the principle of biophilia and its subsequent study. Ants, their built habitat, and their interdependent social structure are an appropriate metaphor for the human urban environment.

### Discussion and Conclusion

The concept of therapeutic planning bestows benefits related to peace, restoration and relaxation in urban settings. It also appears to confer benefits that attenuate the daily annoyances of urban living. Planners and decision makers tend to undervalue the contribution made by green space because much of the evidence of its usefulness remains subjective. There is however, a need to reconcile subjective judgements with the technical and empirical standards that form the basis of our present planning processes and tools.

The genesis of this paper was based on the sociobiologic observations of E.O. Wilson and the belief that humans have a genetic predisposition or need to exist as part of nature. Economist Alfred Marshall, who has been described as “a giant among economists” (Kennedy, 2011, p.147), shares a world view with Wilson that seems paradoxical. Although Marshall is best known for developing mathematical formulae to develop economic theories, he was skeptical about their application, believing they could “produce theoretical results of no practical relevance” (Ibid. p.148). Instead, Marshall believed that biological metaphors were key to understanding the economy of cities, and an understanding of the complex, constantly evolving interactions between individuals. A biological systems approach combines all concepts – complexity, interdisciplinarity, evolution, adaptation and growth – returning us once again to the idea that urban planning, as a discipline, presently operates from a narrow exclusionary framework that is quickly becoming irrelevant to the needs of humans in the city. E.O.

Wilson suggested that “[i]n time, all of science will come to be a continuum of description, an explanation of networks, of principles and laws. That is why you need not just be training in one speciality, but also acquire breadth in other fields, related to and even distant from your own initial choice” (Wilson, 2012). Wilson’s words apply equally to urban planners and those who educate them.

There is a growing recognition of cities as complex systems. Rydin et al. (2009), in a discussion of improving health outcomes by modifying the physical fabric of towns and cities, acknowledge that answers to human health problems depend “on many interactions and feedback loops, so that prediction within the planning process is fraught with difficulties and unintended consequences are common” (Rydin et al., 2009, p.2079).They suggest that complexity implies that it will be impossible to predict all possible outcomes, and plans must be experimental and incremental. Trial and error, lay knowledge and the experience of local communities, collaboration, and improved and ongoing assessment practices based on dialogue, deliberation, and discussion rather than on a technical exercise done by external experts are identified as necessary tools to cope with complex systems (Rydin et al., 2009). Planners have been slow to come to terms with the implications of complexity, as it challenges the assumptions about stability, linearity, and regularity that have driven evidence-based planning policy. For urban dwellers however, complexity holds the promise that their environment will begin to reflect the way they move, meet, and spend time in cities.

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1. James et al. report on the outcomes of a symposium held at the University of Salford, United Kingdom, June 2007, recognized three important gaps in urban green space research: the need to encourage interdisciplinary and multidisciplinary approaches; the need to develop joint, multidisciplinary initiatives across Europe; and the need for comparative research. A distinction between multidisciplinary, interdisciplinary and transdisciplinary approaches, and the Delphi Technique is discussed. (Urban Forestry & Urban Greening (January 2009), 8 (2), pg. 65-75. doi: 10.1016/j.ufug.2009.02.001). [↑](#footnote-ref-1)