CHAPTER 5.5

Linking Social and Ecological Systems

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5.5.1 Introduction

On 16 November 2005 a water sample was taken from an urban stream in a metropolitan area in the southern United States and tested for the presence of *E. coli.* Although water samples from this and other streams in the metropolitan area frequently registered over 15,000 colonies/100 ml, this particular sample is unique in that it registered a reading of 70,000 colonies/100 ml, 350 per cent greater than the 200 colonies/100 ml—the Environment Protection Agency's standard for streams. The fetid floodwaters in New Orleans from Hurricane Katrina, which had a contamination level of 10,000 colonies/100 ml and attracted considerable public attention, were cleaner than this stream at the time of sampling.

Although a number of factors can contribute to this high reading, the stream consistently failed to meet water quality standards throughout the year. In addition, children from the local neighbourhood often played in the stream. Yet, presentations on water quality issues and potential health hazards did not raise any concerns among the citizenry, news outlets, and policy-makers.

Obviously, there appears to be a disconnection between social and ecological systems as reflected by the lack of concern by residents, natural resource managers, and decision-makers to the degraded stream conditions. This disconnection suggests the following question: How are social and ecological systems linked in urban landscapes and how does one begin to examine that linkage? In this chapter, we explore the linkage between the ecological and social systems of urban landscapes. First, we examine two metrics—sense of place and land cover—that have been used to integrate social and ecological systems. Second, we examine how system models have been used to link ecological systems with social systems. Third, we introduce the concept of complex adaptive systems (Gunderson & Holling 2002), as it may apply to urban landscapes, and finally we present a socio-ecological model (Morse 2007), based on complex adaptive systems and structuration theory (Stones 2005), as a means to link social systems with ecological systems.

5.5.2 Socio-ecological integrators

Westley *et al*. (2002) eloquently discuss how ecological and social systems are quite different and that the systems may not be as congruent as ecologists would like them to be. There are several reasons for this difference. Ecological systems are characterized by time and space. Social systems are too characterized by time and space, but there is also a third dimension—'structure of significance' (Westley *et al*. 2002). Structure of significance refers to the ability of humans to construct and manipulate symbols, principally words, thus collectively inventing a reality that may or may not reflect true conditions. Human actions and decisions are influenced by this structure of significance. In our water example, conditions may not be perceived by individuals as badly as the actual condition of the stream, thus no action. Although there is ecological change, as reflected by water quality, there is no social response.

This does not mean that social and ecological systems cannot be linked in an urban landscape. For example, the Baltimore Long-Term Ecological

Research program (LTER) has taken a patch approach to characterize social and ecological systems (Pickett *et al*. 1997). Pickett *et al*. (1997) proposed that by defining the urban landscape through social and ecological patches one can overlay the different patch types and examine how social and ecological systems are related. To accomplish this approach, Grove *et al*. (2006) used PRIZM, a marketing classification system, to define social patches and vegetation cover to characterize ecological conditions of riparian habitat, private lands, and right-of-ways. PRIZM categorizes people into lifestyle clusters based on household education, income, occupation, race/ancestry, family composition, and housing (Claritas 1999).

Grove *et al*. (2006) report that standard variables, such as income and education, did not explain variations in vegetation cover of the selected habitats. Likewise, they observed that population density was not a good predictor of vegetation cover, a social metric often used to characterize social conditions. Grove *et al*. (2006) did observe that lifestyle behaviour was the best predictor for vegetation cover of private lands, and housing age was significantly associated with vegetation cover for each of the selected habitats. They also reported that social stratification was a better predictor of potential vegetation cover, whereas lifestyle behaviour was a better predictor of present vegetation cover.

The aspect of scale is especially problematic in socio-ecological research. For example, at the fine-scale level, individual decisions affect the context in which ecological structure and function occur. Yet, many of the policies regulating management decisions are implemented at the broader scale. Grove *et al*. (2006) illustrate this interplay of scale of fine-scale decisions and broad-scale management with respect to social systems. Lifestyle of landowners influenced not only the vegetation on their property but also on right-of-ways (managed lands), which are governed by a broad-scale management plan.

The use of PRIZM information to define social patch types may be effective as a site specific analysis; however, cross-site analyses may be limited without further characterization of environmental attitudes, perceptions, and behaviours of marketing classes regionally, nationally, and internationally. Do the environmental attitudes, perceptions, and behaviours of a marketing class vary regionally? Are they the same across a nation? Do they differ among nations? With further research, databases like PRIZM may provide insights into how social and ecological systems are integrated in urban and urbanizing landscapes.

Cross-site analyses provide an opportunity to compare how social and ecological systems are similar or dissimilar across urban areas. Both sense of place and land cover types have been used in cross-site analyses to evaluate how socio-ecological systems vary among urban areas, and will be examined in greater detail below.

5.5.2.1 Sense of place

The Millennium Ecosystem Assessment (2003) defines 'sense of place' as one of the non-material, cultural services provided by ecosystems. It follows then that when ecosystems or landscapes are altered to a measurable degree, the net gain or loss to cultural services should be also altered, as would other provisioning or regulating services like food, water, or climate. Arguably, a construct such as sense of place is more difficult to gauge than other services because the former depends to a greater extent on human perception. Still, these ecosystem services are articulated strongly in instances of ecosystem and landscape change. Bengston *et al*. (2005) remark: '[a]t the local level,…the core of the debate about sprawl…is the emotional impact people experience when they lose places in their own communities they feel deeply attached to'.

Sense of place is both a conceptual and an empirical approach to assess humans' emotive and cognitive, non-tangible, cultural connection to place (Relpf 1997). Fundamentally, sense of place refers to people's interpretation of a place and their resulting identification with the same. The domains of sense of place include place attachment (self-identity related to place), place satisfaction (attitudes toward place), place meanings (descriptive of why the place is important), and place characteristics (environmental attributes) (Stedman 2002, 2003). We assume that sense of places varies by perceiver and that attachments are imparted to a place based on people's experiences with places. Meanings are not necessarily inherent in a place but are assigned and

may vary accordingly among individuals or groups, much like Westley's *et al*.'s (2002) significance of structure. Although we regard sense of place as socially constructed, we also assume that there are more generally held interpretations of place that can be discerned by socio-demographic groups or other meaningful subgroups. Because of the subjectivity of sense of place, it is also assumed to be dynamic, continually changing and evolving based on structural drivers such as changing demographics, political influence, or natural change. Place definitions, even at a given point in time, are open to multiple interpretations, but once a standard has been established it is repeatable; hence, its inherit application to cross-site analyses (Jorgensen & Stedman 2006). Sense of place, however, has its own set of problems with respect to standardization due to the very definition of 'sense of place,' that its complexity resists exact definition, and attempts to quantify it may miss the point.

Senseo fpla cem easurement

Measurement of sense of place and related constructs (place attachment) use both quantitative and qualitative methodologies, although qualitative or phenomenological approaches are common. Entrikin (1991) discusses the fundamental problems of accounting for human perceptions as variables in place analyses. The subjective meanings, feelings, and symbols which comprise sense of place are difficult to adequately quantify with standard positivistic measures such as Likert scales. Entrikin (1991) proposes the use of open-ended narrative as a method of assessing place perceptions and the use of conjoint analysis.

Still, a rich literature exists on quantitative means of assessing place-related constructs (primarily place attachment) dating back to the early 1990s—for instance, Williams *et al*. (1992) seminal work on the construction of a place attachment scale, and more recently Williams and Vaske's (2003) use of confirmatory factor analysis to examine the generalizability and validity of a two-dimensional scale of place attachment; and Jorgensen and Stedman's (2001) attitudinal scale representing three commonly accepted dimensions of sense of place and place attachment: place identity, attachment, and dependence.

Ecological beliefs and environmental values are potential modifiers of individual land-use choices and of an individuals' sense of place (Jorgensen & Stedman 2006). One way of quantifying these values is to map them spatially through place-based mapping (Brown 2005). Mapped landscape values will provide the link from social understanding to ecological analysis of specific places on the landscape. The mapped landscape values will be supplemented by a more nuanced understanding of ecological attributes that are being developed for the satisfaction domain of sense of place and the detailed information on ecological beliefs and values and behaviours. Through use of the ecological data, we can provide realistic scenarios for potential ecological change and directly link them to potential changes in landscape values and individuals' sense of place. Realistic 'what if' scenarios can be developed to understand trade-offs between sense of place, landscape values, and ecological change.

A number of efforts have been made towards mapping landscape values (Brown 2005). The most developed of these focuses on landscape values and activities and relates them to sense of place. Specific ecological values attributed to the landscape are rather limited in this literature and it is expected that the area needs to be expanded to facilitate integration with ecological data. By mapping landscape values there is the potential for suitability analysis, conservation planning, identification of local knowledge, and hot spot identification (Brown 2005). An additional benefit is the inclusion of landscape values in development scenarios to assess effects on social systems through the measurement of place attachment by validity and generalizability of a psychometric approach (Brown 2006). When combining mapping with a method for calculating potential conflict (Manfredo *et al*. 2003), the approach could provide a very useful guide for regional planning and conservation of natural areas and future development, as described by Yli-Pelkonen and Niemelä (2005).

5.5.2.2 Land cover

Humans transform a landscape for their habitat, a process known as urbanization. These transformations have been studied extensively to assess their

effects on ecosystem patterns and processes—ecology in the system—and have been illustrated in this text, chapters in this book, and elsewhere (e.g. McDonnell *et al*. 2009). The use of that landscape by humans is called 'land-use' and is generally classified using a classification system devised by Anderson *et al*. (1976). How humans manage that land-use creates a variety of complex land covers such as yards, gardens, vacant lots, forest remnants, and agricultural plots (see Pauleit and Breuste, Chapter 1.1; Ellis *et al*. 2006). Although additional research is needed to link land cover to social structures and patterns, we hypothesize that these fine-scale attributes, both ecological and social, can be used to characterize a 'signature' of a landscape. These signatures would reflect specific ecological structure associated with specific social structure along the urban–rural gradient.

Fine-scale mapping to link social and ecological structure is not new. Biotoping has been used extensively for fine-scale mapping of habitats in urban landscapes, but is very labour intensive (see Pauleit and Breuste, Chapter 1.1; Sukopp & Weiler 1988). More recently, biotoping has been linked to social context to evaluate the effect of context on biodiversity (Cilliers and Sibert, Chapter 3.2; Cilliers *et al*. in review). Again, this approach is very labour intensive and may not be suitable for cross-site comparisons because of differences in social context. Cadenasso *et al*. (2007) have developed a fine-scale mapping protocol, HERCULES, that links infrastructure with vegetation cover, and have demonstrated its usefulness in predicting water quality as compared to an Anderson classification. Although Anderson land-use classification was not developed for predicting water quality (the use of per cent of impervious surfaces may be an easier method than the spatial mapping required by HERCULES), HERCULES begins to address the issue of infrastructure and its effect on ecosystem processes. Like biotoping, HERCULES is labour intensive and is rather unwieldy because of the numerous types of patches generated. Nonetheless, for small catchments, the protocol may be useful in linking ecological structure and function with social patterns and processes when supplemented with social characterizations. Quantifying error, a necessity for cross-site comparisons, may be problematic (see Ellis 2000). Similarly, Grove *et al*. (2006) used fine-scale analysis to identify what social attributes affect public land management, but their approach may not have worldwide applicability because of the use of PRIZM, a marketing classification system for the United States, and the costs associated with purchasing PRIZM data.

To couple human and natural systems, attention must be given to both land-use (human use) and land cover (biophysical condition) and their spatial and temporal dynamics and autocorrelation (Rindfuss *et al*. 2004). Obviously, multidisciplinary teams composed of natural, social, and spatial disciplines are necessary. Of these disciplines, social characterizations of a land parcel may be the most fluid. Rindfuss *et al*. (2004) observed that a land parcel may change ownership, be borrowed or rented, have multiusers with different purposes, and may have multiple jurisdictions affecting it. Yet, from a spatial perspective, the patch and its boundaries may not change with changing social context, and if change does occur, there may be a time lag before it is recorded by the observer. Rindfuss *et al*. (2004) further report four issues that occur with linking natural, social, and spatial attributes over time: 1) aggregation and inference problems, 2) land-use pixel links, 3) data and measurements, and 4) remote sensing analysis. Aggregation and inference problems are scale issues. Patterns observed at the aggregate level of county or district may not exist at the household level (see Robinson 1950) and similarly patterns at the household level may not be the same operating at an aggregate level. Rindfuss *et al*. (2004) state that the solution is rather simple '…the level of aggregation in the measurement needs to match the level of aggregation in the hypothesis being examined'. In other words, link your methodology to your research question.

The challenge of linking land-use to pixels has three issues: 1) the fundamental differences between the way data are collected on people and pixel, 2) the spatio-temporal implications of the data collections, and 3) analytical problems associated with combining issues 1 and 2 (Rindfuss *et al*. 2004). As previously mentioned, the parcel and its boundaries may not change spatially over time but ownership and use may. Obviously, longitudinal studies are needed to ascertain how sociological attributes

and their organization change within a parcel. The challenge of linking land-use to pixels echoes also in the type of data and measurements taken. Intuitively, this issue is driven by the research question. What sociological measurements are needed and how are they expressed on the ground? Ground truthing for both sociological attributes (e.g. through surveys and interviews) and biophysical features of the parcel, needs to be done congruently. An important aspect of this component is data quality, not only with respect to the individual disciplines but also interactions between disciplines (Rindfuss *et al*. 2004). Unfortunately, such a data error structure has not been developed.

Finally, remote sensing analysis issues are of particular concern for temporal analyses when using multiple scenes from various time points. 'False change' errors may occur with mis-registration of maps and textural differences (Ellis *et al*. 2006). These problems can be corrected through estimating changes in the ecological map across the sample cell (Wang & Ellis 2005). Another error is disagreement between interpreters, which can be minimized through training and testing quality assurance at different intervals of study. This testing will yield a measure of interpreter error which can be used to give a conservative estimate of prediction error for the reported spatial changes.

Even with the issues presented, fine-scale analyses (e.g. land cover) may be the best opportunities to link social and ecological data and enable cross-site comparability. For example, Ellis *et al*. (2006) used land-use and land-cover data, interpreted from high spatial resolution (<1 m) imagery, for six 1 km^2 sites, two in the United States (urban) and four in China (agricultural villages), to compare long-term ecological changes within densely populated landscapes. Using their protocol, one could modify land-uses and land covers for urban landscapes only. By appropriately overlaying sociological data, one can be begin to evaluate fine-scale changes sociologically and ecologically. For instance, a wealth of sociological data existed for New Orleans neighbourhoods before Hurricane Katrina impacted the city, and a considerable amount of data has been collected after the storm. By coupling that data with high resolution imagery and on the ground sampling, one can begin to examine the resiliency of social and ecological structure in response to a trauma. Similarly, many cities in Europe are losing their population because of low birth rates and emigration. This dynamic change provides the opportunity to study stability of social and ecological systems in a changing economic environment.

5.5.3 Modelling social-ecological systems

In 1998, the US National Science Foundation established two long-term ecological research sites—Baltimore, Maryland, and Phoenix, Arizona—to study urban landscapes. One of the desired outcomes from these programmes was to link social-economic systems with ecological systems (Redman *et al*. 2004). For ecological systems, the LTER network in the United States focuses on five core research areas: pattern and control of primary production, spatial and temporal distribution of populations selected to represent trophic structure, pattern and control of organic matter, pattern and movement of inorganic material, and patterns and frequency of disturbances (http://www.lternet.edu/coreareas). By having similar core research areas, LTER sites can conduct cross-site comparative studies of ecosystem structure and function across a vast array of bioregions. With the advent of the urban LTERs, similar core research areas have been proposed for sociological patterns and processes within the LTER network. Core areas are demography, technological change, economic growth, political and social institutions, culture, and knowledge of information exchange (Redman *et al*. 2004) (Table 5.5.1). Redman *et al*. (2004) propose that the human and ecological components of urban landscapes interact across multiple spatial and temporal scales and these interactions are mediated by land-use, land cover, production, consumption, and disposal.

An initial approach to link social and ecological systems was to adapt the human ecological model proposed by Machlis *et al*. (1997) to urban landscapes (Pickett *et al*. 1997). In their model, Machlis *et al*. (1997) provide a detailed list of socio-economic attributes that define social systems and link those attributes to natural resources. The model, itself, does not identify how each attribute interacts, but

Table 5.5.1 Redman *et al.* (2004) proposed the following social patterns and processes to serve as core research areas for social analyses within the National Science Foundation Long-Term Ecological Research Network

Demography: the growth, size, composition, distribution, and movement of human populations.
Technology change: the accumulated store of cultural knowledge about how to adapt to, use, and act on the biophysical environment and its material resources to satisfy human needs and wants.
Economic growth: the sets of institutional arrangements through which goods and services are produced and distributed.
Political and social institutions: enduring sets of ideas about how to accomplish goals recognized as important in a society. For instance, most societies have some form of family, religious, economic, educational, health, and political institutions that characterize its way of life.
Culture: culturally determined attitudes, beliefs, and values that purport to characterize aspects of collective reality, sentiments, and preferences of various groups at different scales, times, and places.
Knowledge and information exchange: the genetic and cultural communication of instructions, data, ideas, and so on.

rather leaves the identification of linkages to the user. For example, Pickett *et al*. (1997) modified Machlis original model by enhancing the biophysical resources to represent ecosystem patterns and processes, thus creating the framework to evaluate the effect of social structure on ecosystem structure andfun ction(Fig. 5.5.1).

Another modelling approach has been to link social drivers with ecological systems. Alberti (2008) identifies important socio-ecological drivers and recognizes the importance of spatio-temporal elements (Fig 5.5.2). In her conceptual model, ecosystem patterns and processes are linked directly to social patterns and processes through relevant interactions and feedbacks. Other models also have been proposed. For instance, Grimm *et al*. (2000) developed a conceptual scheme that integrates ecological and social systems (Fig. 5.5.3). What is particularly interesting about Grimm *et al*.'s (2000) approach is that the feedback loop within the social system is directly linked to land-use and ecosystem patterns and processes. In other words, they propose that in order to study social systems within an urban landscape, knowledge and information about the ecological and social systems is a prerequisite, thus directly linking social patterns and processes to ecological patterns and processes. Yli-Pelkonen and Niemelä (2005) have applied Grimm *et al*.'s (2000) model to guide urban planning in making recommendations for biological conservation of natural areas within an urban landscape. A more detailed description on how each of these models differ is described by Alberti (2008).

These models tend to be structural in their orientation, focusing on system level patterns and processes such as institutions, demographics, policies, and land-use patterns, and are known as system models. They often require detailed enumeration of causes and functional representations, and assume a linearity across a spatial scale (Parker *et al*. 2003). In general, these models are primarily biocentric—focusing principally on how ecological components are affected, this is to say the ecology *in* urban landscapes. In general, they do not account directly for the effect of the decision-making process or social drives on social patterns and processes. The research focuses principally on how urbanization, through different socio-economic drivers, affects ecosystem patterns and processes. That is not to say that socio-economic components are not identified and recognized as being affected too (see Grimm *et al*. 2000), but rather that the feedback mechanisms of how ecological systems are changing socio-economic systems are generally not quantified. For instance, in our water quality example, we can identify and quantify those anthropogenic factors creating the condition leading to degraded water quality, but we have not identified changes in social responses to this condition. This is understandable considering ecologists and biologists are using the models to study ecological patterns and processes under different land management conditions and social contexts—the ecology *in* urban landscapes.

Another set of models defining socio-ecological systems are called agent-based models. This set of models focuses on individuals or agents and their decision-making processes and actions (Parker *et al*. 2003). Agents are perceived to have control over

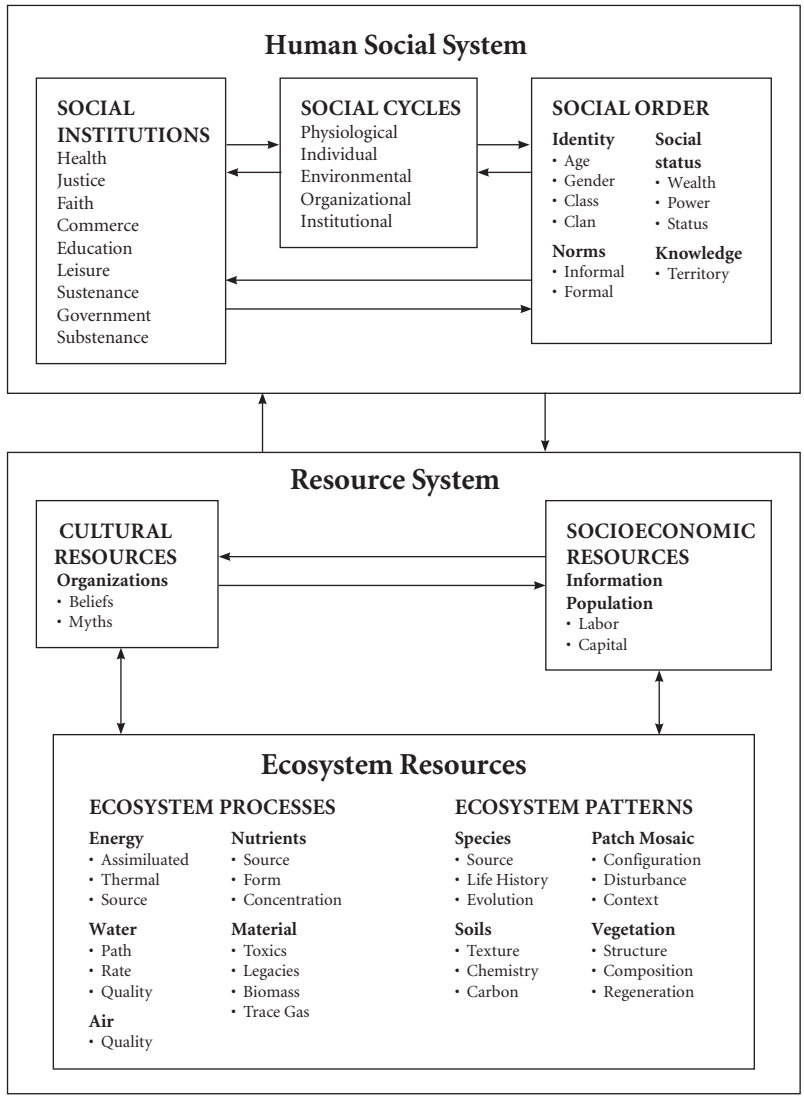

Figure 5.5.1 A conceptual model illustrating components within a human ecosystem and general linkages between those components, as proposed by Pickett *et al.* (1997). With kind permission from springer Science+Business Media

their actions and behave according to some model of decision-making, often some form of rational choice theory from economics. These models can be used to explore emergent patterns from individual human interactions between themselves and with the environment (Alberti 2008).

A third approach has begun to integrate system- and agent-based models, thus bringing together autonomous human agents and structural drivers, creating multiagent system models (Parker *et al.* 2003). Institutions, policies, and other social systems and ecosystem resources are seen to both enable and constrain the agent's actions, on the one hand, while also being the products of previous human actions and intentions (Morse 2007). For instance, Morse (2007) used an agent-based model to identify how policy was used to influence individual decisions on land-use and land cover and how the actions they

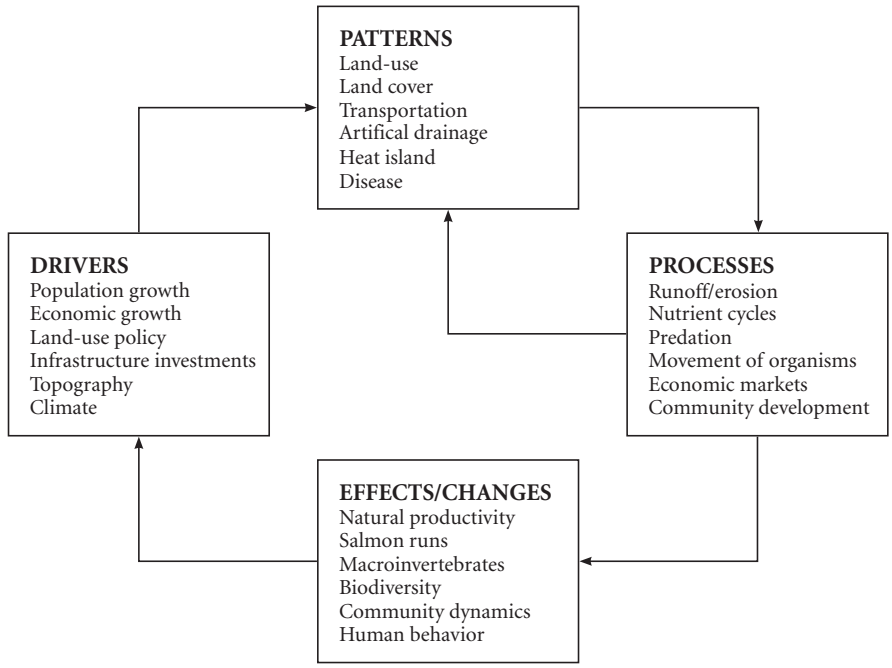

Figure 5.5.2 A conceptual model representing the relevant interactions and feedback of a socio-ecological system for urban ecosystems, as proposed by Alberti (2008). With permissin from The University of California Press

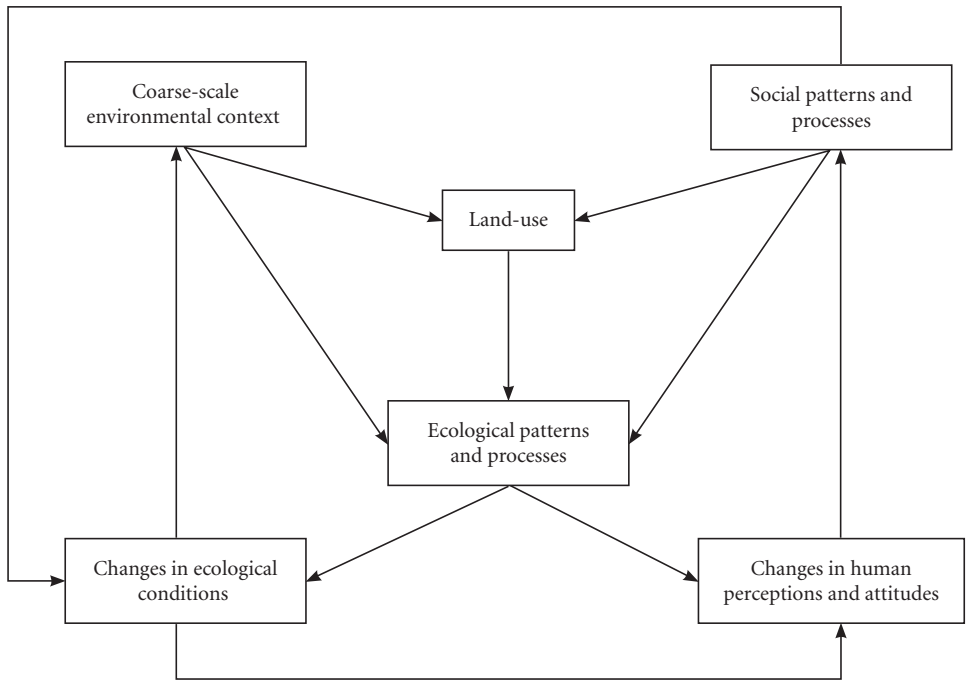

Figure 5.5.3 A conceptual scheme for integrating social and ecological systems in urban landscapes, as proposed by Grimm *et al*. (2000). With permissin from The University of California Press

took affected landscape patterns in an agrarian landscape in Costa Rica. A critical feature of this kind of model is to link the decision-making process across multiple levels in a dynamic manner that allows for understanding of decision-making within a changing structural (social and ecological) context. Even more importantly, this type of agent–structure–agent model allows for understanding of feedback that links changing ecological conditions to decision making. How do actors learn from past decisions? What information is taken into account when making decisions? Is ecological information taken into account? If it is, where did this information come from? How accurate is the information? How do we change the structures that influence future decisions? In essence, how do we respond to environmental feedbacks?

5.5.3.1 Complex adaptive systems

The processes of structural change to both social and ecological systems are examined by focusing on the cyclical process of human actions and interactions with the environment. The approach is based on the premise that urban landscapes are complex adaptive systems (see Gunderson & Holling 2002). In complex adaptive systems (CAS), the interactions of lower level components result in emergent patterns at higher levels that, in turn, feedback to influence future lower level interactions (Levin 1998). It is through this cyclic process of interactions and feedback that CAS self-organizes, often into nested systems (Levin 1998). CAS are also characterized by high levels of uncertainty, cross-scale interactions, threshold effects, and the possibility of multiple equilibria (Gunderson & Holling 2002). With a foundation in CAS, it is clear that understanding the feedback between and within social and ecological systems is critical if we are to manage for the resilience of these systems and their sustainability. Adaptive environmental assessment and management was developed as a flexible approach to address uncertainty and to provide a framework for active learning (Gunderson & Holling 2002). One of the central tenets of adaptive management is learning, and the learning is dependent upon processing of information in a formalized manner through experimentation, monitoring, and assessment (Gunderson 1999). But is all the information available? With the inevitability of surprise in CAS, is it even achievable? Is the information applicable or useful to human actors managing the system? How do different actors or decision-makers translate the information into actions? Before we continue the discussion on CAS, we need to expand our understanding of CAS by linking social and ecological systems in a Structuration of Complex Adaptive Systems (SoCAS) framework (see Morse 2007).

Structurationo fC omplexA daptiveSys tems

Central to a SoCAS framework are elements of structuration theory from the social sciences (Stones 2005), those of complex adaptive systems outlined above (Levin 1998; Gunderson & Holling 2002), and the theory of hierarchical patch dynamics (Wu and Loucks 1995) from the ecological sciences (Morse 2007). Both social and ecological theories are used to provide guidance because the drivers of these systems operate differently across spatial and temporal scales. Human actors act with foresight, reflexivity, and can communicate those ideas into the future, while ecosystems do not (Westley *et al*. 2002). For the framework, the social and ecological CAS mirror each other and are linked at the point where human actions and interactions with the environmento ccur(Fig. 5.5.4).

Structuration theory frames 'the interaction of structure and agency across scales [that] must be the centerpiece of a dynamic understanding of people–environment interaction' (Scoones 1999). Structuration theory avoids both an overly objective structural approach and an exaggerated emphasis of subjectivist, agent-based approaches by focusing on their interaction (Stones 2005). Human action is viewed as a continuous flow of conduct (Giddens 1984). Structure is seen as both 'the medium and outcome of the conduct it recursively organizes' (Giddens 1984). Structure enters into the constitution of the agent as a medium (internal structure) and from there into the practices that the agent produces as an outcome (external structure) (Stones 2005). Structures that are the outcome of one period of conduct (actions, activities) become the medium for the next round of agents' conduct (Stones 2005). Through recursive social conduct,

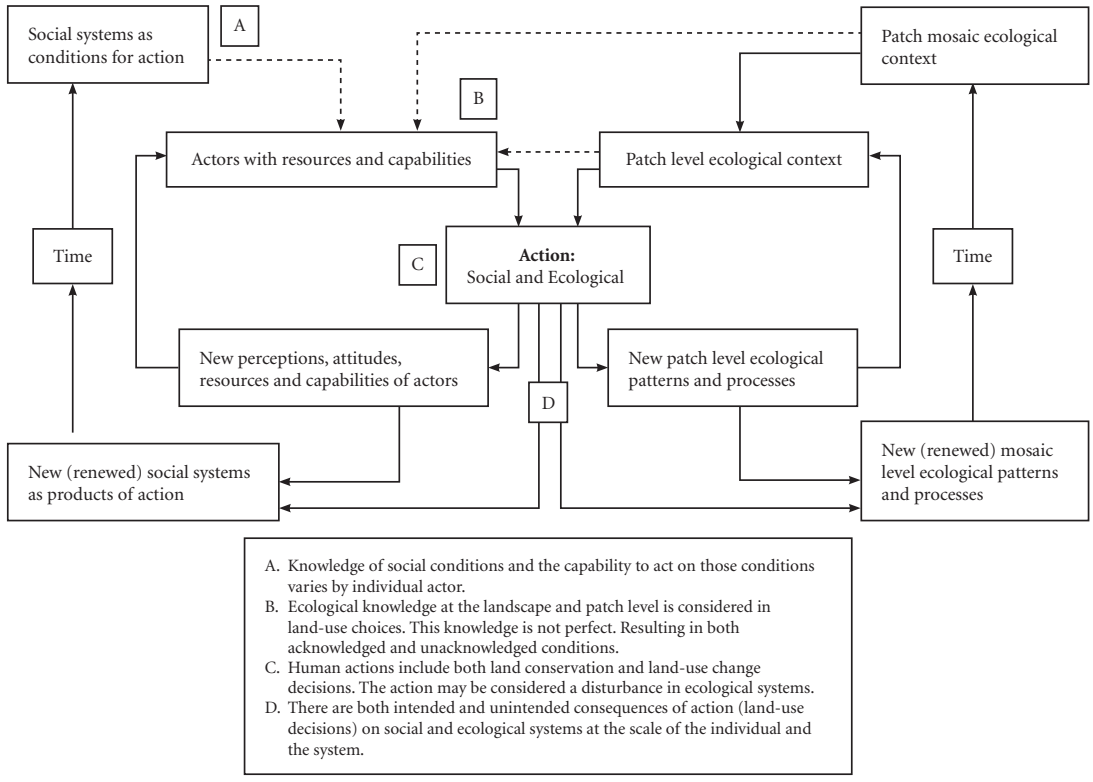

Figure 5.5.4 A conceptual model linking social decision-making processes with landscape dynamics to characterize the effect of land-use on social and ecological systems. This model is nested hierarchically within larger systems. With permission from The University of California Press

structures influence the activity of individuals, who in turn, transform or reaffirm those same structures constantly producing and reproducing society (Kondrat 2002).

Social systems (e.g. markets, governments) can be thought of as the patterns of social relations, or regularized social practices, that stretch across time and space produced by the process of structuration (Giddens 1984). They are the complex, entrenched, and powerful networks of relationships, behaviors, beliefs, interactions, rules, and resources, and are both temporally and spatially contingent (Kondrat 2002). Furthermore, they are integrated with other social systems hierarchically, across space and over time. Structures are considered to be both enabling and constraining of agents actions (Giddens 1984).

The model represents several areas where information is an input for the decision process (Fig. 5.5.4). Some of this information is ecological (B) and is not always perfect (dashed lines). Other information reflects the extent to which the decision-maker knows about external social structures and how to 'make things happen' within the system (A). The decision-maker takes action based on this knowledge (A, B) and incorporates their capabilities (resources at their disposal) to take action.

The black box of actor decision-making in Structuration includes, 1) their motivation to action, 2) the rationalization of action and knowledge, and 3) their ability to reflexively monitor their action (Giddens 1984). Motivations are the wants and desires of an individual and are their overall plans for conduct. Rationalization of action includes the agent's knowledge and how to proceed to obtain their intended outcomes. This knowledge is not perfect, however, and there is always the possibility of unacknowledged condi-

tions and unintended consequences. Reflexive monitoring of action includes the agents' continual monitoring of actions and the consequences of their actions, and of the actions of others. This monitoring can be for both social and environmental consequences. This understanding of the individual's decision-making process matches nicely with that of adaptive management. The focus on knowledge provides a framework to emphasize conservation learning, the use of information, and the development of an ecological aesthetic. 'As knowledge about both social and ecological systems is often imperfect and the cumulative and cascading consequences of our actions within and across both systems are extremely complex and difficult to predict, explicit identification of these knowledge systems (or lack thereof) is a critical feature for a framework of linked social ecological CAS' (Morse 2007). Our model, and the others using this integrated approach, are well-adapted to capturing the interdependencies, heterogeneity, and nested hierarchies among agents and their environments characterizing urban landscapes (Parker *et al*. 2003). Parker *et al*. (2003) provides an excellent review of the application of multiagent system models to simulate land-use change.

5.5.4 Summary

We began this chapter by presenting a scenario involving a highly contaminated stream and the lack of political or environmental response to it. We ended the chapter by discussing ways in which to model social and ecological data. During this course, we presented different techniques and models currently being used to evaluate the integration of social and ecological systems. Throughout the discussion, the underlying assumption is that the ecology *of* the system can be derived for urban settlement along an urban to rural gradient only through long-term monitoring of both social and ecological components across multiple scales. Through the long-term monitoring of social and ecological systems, we will be able to build into these models the nuances of the complexity of our urban systems, thus potentially linking changes to social patterns and process to ecological patterns and processes. In doing so, we begin to take the necessary steps to identify factors affecting the sustainability of urban landscapes.

References

Acar, C., Acar, H., & Eroglu, E. (2007) Evaluation of ornamental plant resources to urban biodiversity and cultural changing: A case study of residential landscapes in Trabzon city (Turkey). *Building and Environment* **42**(1): 218–29.

Adams, C.E., Lindsey, K.J., & Ash, S.J. (2006) *Urban Wildlife Management*. London, Taylor and Francis.

Adams, C.E., & Lindsey, K.J. (2009) *Urban Wildlife Management* (2nd edn). Boca Raton, F.L., Taylor and Francis Press.

Adams, L.W. (1994) *Urban Wildlife Habitats: A Landscape Perspective*. University of Minnesota Press: Minneapolis, MN.

Ad-hoc-Arebeitsgruppe Boden (ed) (2005) *Bodenkundliche Kartieranleitung*.H annover.

Adkins, C.A., & Stott, P. (1998) Home ranges, movements and habitat associations of red foxes *Vulpes vulpes* in suburban Toronto, Ontario, Canada. *Journal of Zoology* **244**:335–46.

Ahern, J. (1995) Greenways as a planning strategy. In: J.G. Fabos, A. Jack. (eds), *Greenways: The Beginning of an International Movement*. Elsevier, New York.

Ahern, J. (2007) Green infrastructure, a spatial solution for cities. In: V. Novotny and P. Brown (eds) *Cities of the Future,* pp. 267–83. IWA Publishing.

Ahern, J., Leduc, E., & York, M.L. (2006) *Biodiversity Planning and Design. Sustainable Practices*. Island Press, Washington D.C.

Akan, A.O. (1993) *Urban Stormwater Hydrology - A Guide to Engineering Calculations*. Technomic Publishing Co., Lancaster, Pennsylvania.

Akan, A.O. & Houghtalen, R.J. (2003) *Urban Hydrology, Hydraulics, and Stormwater Quality: Engineering Applications and Computer Modeling*. John Wiley and Sons, Inc., Hoboken, New Jersey.

Akbari, H., Davis, S., Dosano, S., Huang, J., & Winnett, S., (eds.) (1992) *Cooling Our Communities: A Guidebook on Tree Planting and Light-Colored Surfacing*. U.S. EPA, Washington D.C.

Akinnifesi, F., Sileshi, G., Ajayi, O.I., Akinnifesi, A., Moura, E., Linhares, J., & Rodrigues, I. August (2009) Biodiversity of the urban homegardens of São Luís city, Northeastern Brazil. *Urban Ecosystems* **13**(1).[o nline]

Alberti, M. (2005) The effects of urban patterns on ecosystem function. *International Regional Science Review,* **28**: 168–92.

Alberti, M. (2008) *Advances in Urban Ecology: Integrating Humans and Ecological Processes in Urban Ecosystems*. Springer-Verlag, New York.

Alberti, M., & Marzluff, J. (2004) Ecological resilience in urban ecosystems: linking urban patterns to human and ecological functions. *Urban Ecosystems* **7**:241–65.

Alberti, M., Marzluff, J.M., Shulenberger, E., Bradley, G., Ryanand, C., & Zumbrunnen C. (2003) Integrating humans into ecology: opportunities and challenges for studying urban ecosystems. *BioScience* **53**(12),1 169–79.

Alexandri, E. & Jones, P. (2008) Temperature decreases in an urban canyon due to green walls and green roofs in diverse climates. *Building and Environment* **43**(4): 480–93.

Alig, R.J., Kline, J.D., & Lichtenstein, M. (2004) Urbanization on the US landscape: looking ahead in the 21st century. *Landscape and Urban Planning* **69**:219–34.

Alihan, M.A. (1964) *Social Ecology: A Critical Analysis*. Cooper Square Publishing, New York.

Allan, B.F., Keesing, F., & Ostfeld, R.S. (2003) Effect of forest fragmentation on Lyme disease risk. *Conservation Biology* **17**:267–72.

Alley, R., Berntsen, T., Bindoff, N.L., *et al*. (2007) *Climate Change 2007: The Physical Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva.

Alverson, W.S., Waller, D.M., & Solheim, S.L. (1988) Forests too deer: edge effects in northern Wisconsin. *Conservation Biology* **2**:348–58.

Alvey, A. (2006) Promoting and preserving biodiversity in the urban forest. *Urban Forestry & Urban Greening* **5**(4): 195–201.

An, L., He, G., Liang, Z., & Liu, J. (2006). Impacts of demographic and socioeconomic factors on spatio-temporal dynamics of panda habitat. *Biodiversity and Conservation* **15**:2343–63.

Anas, A., Arnott, R., & Small, K.A. (1998) Urban spatial structure. *Journal of Economic Literature* **36** (September): 1426–64.

Anderson, J.R., Hardy, E.E., Roach, J.T., & Witmer, R.E. (1976) Land-use and land cover classification system for

use with remote sensing data. *Professional Paper 964.* US Geological Survey, Washington, D.C.

Anderson, J.L., & Pariela, F. (2005) Strategies to mitigate human-wildlife conflicts Mozambique. Wildlife Management Working Paper No. 8. Food and Agriculture Organization of the United Nations, Rome, Italy.

Anderson, T.A. (2006) *Biology of the Ubiquitous House Sparrow*. Oxford University Press, New York City.

Andersson, E., Barthel, S., & Ahrne, K. (2007) Measuring social-ecological dynamics behind the generation of ecosystem services. *Ecological Applications* **17**(5):12 67–78.

Andreas, B.K., & Lichvar, R.W. (1995) *Floristic Index for Establishing Assessment Standards: A Case Study for Northern Ohio. Technical Report WRP-DE-8*. U.S. Army Corps of Engineers, Washington, DC.

Andrews, K.M., Gibbons, J.W., & Jochimsen, D.M. (2008) Ecological effects of roads on amphibians and reptiles: A literature review. In J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds), *Urban Herpetology*, pp. 121–43. Herpetological Conservation Vol. 3, Society for the Study of Amphibians and Reptiles, Salt Lake City, UT.

Andrieu, E., Dornier, A., Rouifed, S., Schatz, B., & Cheptou, P-O. (2009) The town *Crepis* and the country *Crepis*: How does fragmentation affect a plant-pollinator interaction? *Acta Oecologia* **35**:1–7.

Angel, S., Sheppard, S., Civco, D., Buckley, R., Chabaeva, A., Gitlin, L., Kraley, J. Parent, A., & Perlin, M. (2005) *The Dynamics of Global Urban Expansion*. Transport and Urban Development Department, The World Bank, Washington, DC.

Angilletta, M.J., Wilson, R.S., Niehaus, A.C., Sears, M.W., Navas, C.A., & Ribeiro, P.L. (2007) Urban physiology: city ants possess high heat tolerance. *PLoS ONE* **2**: e258.

Angold, P.G., Sadler, J.P., Hill, M.O., Pullin, A., Rushton, S., Austin, K., Small, E., Wood, B., Wadsworth, R., Sanderson, R., & Thompson, K. (2006) Biodiversity in urban habitat patches. *Science of the Total Environment* **360**: 196–204.

Arbeitsgruppe Methodik der Biotopkartierung im besiedelten Bereich (1986) Flächendeckende Biotopkartierung im besiedelten Bereich als Grundlage einer ökologisch bzw. am Naturschutz orientierten Planung: Grundprogramm für die Bestandsaufnahme und Gliederung des besiedelten Bereichs und dessen Randzonen. *Natur und Landschaft* **61**(10):371–89.

Arbeitsgruppe Methodik der Biotopkartierung im besiedelten Bereich (1993) Flächendeckende Biotopkartierung im besiedelten Bereich als Grundlage einer am Naturschutz orientiertenPlanung:ProgrammfürdieBestandsaufnahme, Gliederung und Bewertung des besiedelten Bereichs und dessen Randzonen: Überarbeitete Fassung 1993. *Natur und Landschaft* **68**(10): 491–526.

Armitage, P.L. (1994) Unwelcome companions: ancient rats reviewed. *Antiquity* **68**:231–40.

Arnfield, A.J. (2003). Two decades of urban climate research: a review of turbulence, exchanges of energy and water, and the urban heat island. *International Journal of Climatology* **23**:1–26.

Arnold, C.L., & Gibbons, J.C. (1996) Impervious surface-coverage: the emergence of a key environmental indicator. *Journal of the American Planning Association* **62**: 243–58.

Arroyo, M.K.T., Marticorena, C., Matthei, O., & Cavieres, L. (2000) Plant invasions in Chile: present patterns and future predictions. In H.A. Mooney and R.J. Hobbs, (eds) *Invasive Species in a Changing World*, pp. 385–421. Island Press, Washington, DC.

Atkins (2008) *The Atkins Carbon Manual*. Atkins Limited, Epsom.

Avital, E., & Jablonka, E. (2000) *Animal Traditions: Behavioural Inheritance in Evolution*. Cambridge University Press, Cambridge.

Bädjer, N. (2000) *Zum Einfluss der Porositätsmerkmale von Stadt- und Industrieböden auf die Stoffkonzentration von Sickerwasser: dargestellt am Beispiel von bauschutt-, aschen-, schlacken- und schlammhaltigen Böden*. Diss. Essener ökolog. Schriften, No. 14. University of Essen, Essen.

Baines, C. (1995) Urban areas. In W.J. Sutherland & D.A. Hill (eds) *Managing Habitats for Conservation* pp. 362–80. Cambridge University Press, Cambridge.

Bairoch, P. (1988) *Cities and Economic Development, From the Dawn of History to the Present*. (Translated by Christopher Braider) University of Chicago Press, Chicago.

Baker, P.J., Molony, S.E., Stone, E., & Cuthill, I.C. (2008) Cats about town: is predation by free-ranging pet cats *Felis catus* likely to affect urban bird populations? *IBIS* **150**:86–99.

Baker, R.J., Hamilton, M.J., Van Den Bussche, R.A., Wiggins, L.E., Sugg, D.W., Smith, M.H., Lomakin, M.D., Gaschak, S.P., Bundova, E.B., Rudenskaya, G.A., & Chesser, R.K. (1996) Small mammals from the most radioactive sites near the Chernobyl nuclear power plant. *Journal of Mammalogy* 77: 155–70.

Baldasano, J.M., Valera, E., & Jimenez, P. (2003) Air quality data from large cities. *The Science of the Total Environment* **307**:141–65.

Baldwin, A.H. (2004) Restoring complex vegetation in urban settings: the case of tidal freshwater marshes. *Urban Ecosystems* **7**(125):137.

Baldwin, A.H., & DeRico, E.F. (1999) The seed bank of a restored tidal freshwater marsh in Washington, DC. *Urban Ecosystems* **3**:5–20.

Baldwin, A.H., & Pendleton, F.N. (2003) Interactive effects of animal disturbance and elevation on vegetation of a tidal freshwater marsh. *Estuaries* **26**(4A):905–15.

Balmford, A., Bruner, A., Cooper, P., *et al*. (2002) Economic reasons for conserving wild nature. *Science* **297**:950–53.

Bandara, R., & Tisdell, C. (2003) Does the economic value of the Asian elephant to urban dwellers exceed their cost to the farmers? A Sri Lankan study. Discussion paper No. 325. School of Economics, University of Queensland. Queensland, Australia.

Bankowska, R. (1980) Fly communities of the family Syrphidae in natural and anthropogenic habitats of Poland. *Memorabilia Zoologica Warsaw* **33**:3– 93.

Barbour, M.T., Gerritsen, J., Snyder, B.D., & Stribling, J.B. (1999) *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish*, 2nd edn. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

Barker, G. (1997) *A Framework for the Future: green networks with multiple uses in and around towns and cities*, English Nature Research Report No. 256. English Nature (now Natural England), Peterborough. [online] http://naturalengland.etraderstores.com/NaturalEnglandShop/R256 [accessed 17 October 2010].

Barker, K. (2004) *Barker Review of Housing Supply: Delivering Stability: Securing our Future Housing Needs*. HM Treasury, London. [online] http://www.hm-treasury.gov.uk/barker_review_of_housing_supply_recommendations.htm [accessed 17 October 2010].

Barthel, S., Colding, J., Elmqvist, T., & Folke, C. (2005) History and local management of a biodiversity-rich, urban, cultural landscape. *Ecology and Society* **105**(2): 10.

Bartsch, H.-U., Kues, J., Sbresny, J. & Schneider, J. (1999) Fachinformationssystem Boden – Baustein eines kommunalen Umweltinformationssystems. In: Asch, K. (Ed.): GIS in Geowissenschaften und Umwelt. Berlin.

Bassuk, N., & Trowbridge, P. (2004) *Trees in the Urban Landscape: Site Assessment, Design and Installation*. 207 pp. Wiley and Sons, Inc. Hoboken, NJ.

Bastin, L., & Thomas, C. (1999) The distribution of plant species in urban vegetation fragments. *Landscape Ecology* **14**:493–507.

Basu, R., & Samet, J.M. (2002) Relation between elevated ambient temperature and mortality: a review of the epidemiologic evidence. *Epidemiologic Review* **24**(2): 190–202.

Bates, A.J., Mackay, R., Greswell, R.B., & Sadler, J.P. (2009) SWITCH in Birmingham, UK: experimental investigation of the ecological and hydrological performance of extensive green roofs. *Reviews in Environmental Science and Bio/Technology* **8**:295–300.

Baycan-Levent, T., & Nijkamp, P. (2009) Planning and management of urban green spaces in Europe: comparative analysis. *Journal of Urban Planning and Development* **135**: 1–12.

BCC (1997) *A Nature Conservation Strategy for Birmingham*. Birmingham City Council, Birmingham.

BBC (2009) Rates of diabetes soar in the UK [online] http://news.bbc.co.uk/1/hi/health/7905734.stm accessed 11 October 2009.

BBodSchG (Bundes-Bodenschutzgesetz) (1998) *Gesetz zum Schutz vor schädlichen Bodenveränderungen und zur Sanierung von Altlasten*.

Bean, E.Z., Hunt, W., & Bidelspach, D.A. (2007) Field survey of permeable pavement surface infiltration rates. *J. Irrig. and Drain. Engrg*. **133(**3):249–55.

Beck, U. (1995) *Ecological Politics in an Age of Risk*, Polity Press, Bristol.

Bedfordshire & Luton Green Infrastructure Consortium (2007) *Bedfordshire & Luton Strategic Green Infrastructure Plan*. [online] http://www.bedsandlutongreeninfrastructure.org.uk/downloads/Beds_and_Luton_Strategic_Green_Infrastructure_Plan.pdf.

Begon, M., Townsend C.R., & Harper, J.L. (2006) *Ecology: From Individuals to Ecosystems*. 4th ed. Blackwell, Oxford.

Bellinzoni, A.M., Caneva, G., & Ricci, S. (2003) Ecological trends in travertine colonisation by pioneer algae and plant communities. *International Biodeterioration & Biodegradation* **51**:203–10.

Benedict, M.A., & McMahon, E.T. (2001) *Green Infrastructure: Smart Conservation for the 21st Century*. The Conservation Fund, Sprawl Watch Clearinghouse, Washington, D.C.

Benedict, M.A., & McMahon, E.T. (2002) Green infrastructure: smart conservation for the 21st Century. *Renewable Resources Journal* **20**(3):12–17.

Benedict, M.A., & McMahon, E.T. (2006) *Green Infrastructure: Linking Landscapes and Communities*. Island Press, Washington, DC.

Bengston, D.N., Potts, R.S., Fan, D.P., & Goetz, E.G. (2005) An analysis of the public discourse about urban sprawl in the United States: monitoring concern about a major threat to forests. *Forest Policy and Economics* **7**: 745–56.

Berkes F., Colding, J., & Folke, C. (eds) (2003) *Navigating Social-Ecological Systems. Building Resilience for Complexity and Change*. Cambridge University Press, Cambridge.

Berkes, F., & Folke C. (1994) Investing in cultural capital for sustainable use of natural capital. In A. Jansson, (ed) *Investing in Natural Capital: The Ecological Economics Appraoch to Sustainability*, pp. 128–49. Island Press, Washington, DC.

Berkes, K., & Folke C. (eds). (1998) *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge University Press Cambridge, UK.

Berkowitz A.R., Nilon C.H., & Holweg K.S. (eds) (2003) *Understanding Urban Ecosystems: A New Frontier for Science and Education*. Springer-Verlag, New York.

Berry, B.J.L. (1990) Urbanization. In: B.L. Turner, II, W.C. Clark, R.W. Kates, J.F. Richards, J.T. Matthews, and W.B. Meyer, (eds) *The Earth as Transformed by Human Action:*

Global and Regional Changes in the Biosphere over the Past 300 Years, pp. 103–20. Cambridge University Press, New York.

Bertin, R.I., Manner, M.E., Larrow, B.F., Cantwell, T.W., & Berstene, E.M. (2005) Norway maple (*Acer platanoides*) and other non-native trees in urban woodlands of central Massachusetts. *Journal of the Torrey Botanical Society* **132**:225–35.

Berven, K.A., & Grudzien, T.A. (1990) Dispersal in the Wood Frog (*Rana sylvatica*): implications for genetic population structure. *Evolution* **44**:2047–56.

Bhatti, M., & Church, A. (2004) Home, the culture of nature and meanings of gardens in late modernity. *Housing Studies* **19**:37–51.

Biasioli, M., Greman, H., Kralj, T., Madrid, F., Diaz-Barrientos, E., & Ajmone-Marsan, F. (2007) Potentially Toxic Elements Contamination in Urban Soils. A Comparison of Three European Cities. *J. Environ. Qual*. **36**:70–9.

Bierwagen, B.G. (2007) Connectivity in urbanizing landscapes: The importance of habitat configuration, urban area size, and dispersal. *Urban Ecosystems* **10**:29–42.

Biggs, J., Williams, P., Whitfield, M., Nicolet, P., & Weatherby, A. (2005) 15 years of pond assessment in Britain: results and lessons learned from the work of Pond Conservation. *Aquatic Conservation-Marine and Freshwater Ecosystems* **15**:693–714.

Billwitz, K., & Breuste, J. (1980) Anthropogene Bodenveränderungen im Stadtgebiet von Halle/Saale. *Wiss. Zs. MLU, Math.-naturwiss. R. Halle* **14**(4):25–43.

Biodiversity Conservation, Sydney Olympic Park. NW Sydney Olympic Park Authority Act, 2001. Vol I. [online] http://www.sydneyolympicpark.com.au/education_and_learning/environment/biodiversity.

Bird, W. (2004) *Natural Fit: Can Green Space and Biodiversity Increase Levels of Physical Activity?* Royal Society for the Protection of Birds and Faculty of Public Health of the Royal College of Physicians of the United Kingdom, Sandy, UK.

Bird, W. (2007) *Natural Thinking – Investigating the links between the Natural Environment, Biodiversity and Mental Health.*RSP B.

Birkle, P., Rodriguez, V.T., & Partida, E.G. (1998) The water balance for the Basin of the Valley of Mexico and implications for future water consumption. *Hydrogeology Journal* **6**(4):500–17.

Birmingham City Council (1997) *Nature Conservation Strategy for Birmingham*. Birmingham City Council & Land Care Associates Ltd, Birmingham. [online] http://www.birmingham.gov.uk/cs/Satellite?c=Page&childpagename=Development%2FPageLayout&cid=1223092715237&pagename=BCC%2FCommon%2FWrapper%2FWrapper [accessed 17 October 2010].

Bischoff, A., Vonlanthen, B., Steinger, T., & Muller-Scharer, H. (2006) Seed provenance matters – Effects on germination of four plant species used for ecological restoration. *Basic and Applied Ecology* **7**:347–59.

Bishop, J.A., & Cook, L.M. (1980) Industrial melanism and the urban environment. *Advances in Ecological Research* **11**:373–404.

Bixler, R.D., Carlisle, C.L., Hammitt, W.E., & Floyd, M.F. (1994) Observed fears and discomforts among urban students on school field trips to wildland areas. *Journal of Environmental Education* **26**:24–35.

Bjerke, T., & Ostdahl, T. (2004) Animal-related attitudes and activities in an urban population. *Anthrozoos* **17**: 109–29.

Blair, R.B. (1996) Land-use and avian species diversity along an urban gradient. *Ecol. Appl*. **6**:506–19.

Blair, R.B. (2001) Birds and butterflies along urban gradients in two ecoregions of the U.S. In J.L. Lockwood and M.L. McKinney, (eds) *Biotic Homogenization*, pp. 33–56. Kluwer, Norwell, Massachusetts.

Blair, R.B., & Launer, A.E. (1997) Butterfly diversity and human land-use: Species assemblages along an urban gradient. *Biological Conservation* **80**:1 13–25.

Blume, H.-P. (1982) Böden des Verdichtungsraumes Berlin. *Mit. Dt. Bodenk. Ges*. **33**:269–80.

Blume, H.-P. (1998) Böden. In: H. Sukopp and R. Wittig (eds) *Stadtökologie*, pp 168–85. Fischer Verlag, Stuttgart.

Blume, H.-P., Brümmer, G.W., & Horn, R. *et al*. (eds) (2009) *Lehrbuch der Bodenkunde*. Spektrum Verlag, Berlin.

Boelens, R. (2006) Co-existing with coyotes in Vancouver (and anywhere else for that matter). *Public Management* **88**(11):26–30.

Böhm, P. (1998) Urban structural units as a key indicator for monitoring and optimising the urban environment. In J. Breuste, H. Feldmann, and O. Uhlmann, (eds), *Urban Ecology*, pp. 442–445. Springer-Verlag, Berlin.

Bolger, D.T., Beard, K.H., Suarez, A.V., & Case, T.J. (2008) Increased abundance of native and non-native spiders with habitat fragmentation. *Diversity and Distributions* **14**:655–65.

Bolund, P., & Hunhammar, S. (1999) Ecosystem services in urban areas. *Ecological Economics* **29**:293–301.

Boone, C.G., & Modarres, A. (2006) Feeding cities that consume farmland. In C.G. Boone and A. Modarres *City and Environment*, pp. 77–94. Temple University Press, Philadelphia, PA.

Borgmann, K.L., & Rodewald, A.D. (2005). Forest restoration in urbanizing landscapes: interactions between land-uses and exotic shrubs. *Restoration Ecology*, **13**: 334–40.

Borgström, S.T., Elmqvist, T., Angelstam, P., & Alfsen-Norodom, C. (2006) Scale mismatches in management of urban landscapes. *Ecology and Society* **11**(2):16.

Borgwardt, S. (2006) Long-term in-situ infiltration performance of permeable concrete block pavement. In: ICPI (Interlocking Concrete Pavement Institute), *Proc. 8th Int. Conf. on Concrete Block Paving*, San Francisco, USA, 6–8 Nov 2006. Omnipress, Madison.

Bork, H.-R, Bork, H., & Dalchow, C. *et al*. (1998) *Landschaftsentwicklung in Mitteleuropa*. Klett Verlag, Gotha/Stuttgart.

Bornkamm, R. (2007) Spontaneous development of urban woody vegetation on differing soils. *Flora* **202**:695–704.

Bornkamm, R., Lee, J.A., & Seaward, M.R.D. (eds) (1982) *Urban Ecology: The Second European Ecological Symposium*. Blackwell Scientific Publications, Oxford.

Botham, M., Rothery, P., Hulme, P., Hill, M., Preston, C., & Roy, D. (2009) Do urban areas act as foci for the spread of alien plant species? An assessment of temporal trends in the UK. *Diversity and Distributions* **15**(2):338–45.

Botkin, D.B. (1990) *Discordant Harmonies: A New Ecology for the Twenty-first Century*. Oxford University Press, New York.

Box, J., & Stanhope, K. (2010) Translocating wildlife habitats: a guide for civil engineers. *Proceedings of the Institution of Civil Engineers - Civil Engineering* **163**: 123–30. [online] http://www.icevirtuallibrary.com/content/article/10.1680/cien.2010.163.3.123.

Box, J., Cossons, V., & McKelvey, J. (2001) Sustainability, biodiversity and land-use planning. *Town & Country Planning* **70**:210–12.

Boyd, R., & Richerson, P.J. (1985) *Culture and the Evolutionary Process*. University of Chicago Press, Chicago, IL.

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

Braden, J.B., & Johnson, D.M. (2004) Downstream economic benefits from stormwater management. *Journal of Water Resources Planning and Management* **130**(6): 498–505.

Bradley, G.A. (1995) *Urban Forest Landscapes: Integrating Multidisciplinary Perspectives*. University of Washington Press, Seattle and London.

Brady, N.C. (2004) *The Nature and Properties of Soils*. Macmillan, New York.

Brakefield, P.M., & Liebert, T.G. (2000) Evolutionary dynamics of declining melanism in the peppered moth in The Netherlands. *Proceedings of the Royal Society of London B* **267**:1953–57.

Brand, P., & Thomas, M.J. (2005) *Urban Environmentalism: Global Change and the Mediation of Local Conflict*. Routledge, New York and Oxford.

Brandes, D. (1987). Die Mauervegetation im östlichen Niedersachsen, *Braunschw. Naturk. Schr.* **2**:6 07–27.

Brandes, D. (1992) Flora und Vegetation von Stadtmauern, *Tuexenia* **12**:315–39.

Brandes, D. (1995) The flora of old town centres in Europe. In: H. Sukopp, M. Numata, and A. Huber, (eds.) *Urban Ecology as the Basis of Urban Planning*. pp. 49–58. Amsterdam, SPB Academic Publishing bv.

Brandes, D. (2001) Urban flora of Sousse (Tunisia). [online] http://opus.tu-bs.de/opus/volltexte/2001/189 [accessed April 4, 2009].

Brattebo, B.O., & Booth, D.B. (2003) Long-term stormwater quantity and quality performance of permeable pavement systems. *Wat. Res.* **37**(18):4369–76.

Breheny, M. (1997) Urban compaction: feasible and acceptable? *Cities* **4**:209–17.

Brenneisen, S. (2006) Space for urban wildlife: Designing green roofs as habitats in Switzerland. *Urban Habitats* **4**: 27–36.

Breuste, J. (1994) Flächennutzung als stadtökologische Steuergröße und Indikator. Geobot. Kolloquium., Frankfurt a. Main., 11, 67–81.

Breuste, J. (2002) Urban Ecology. In: O. Bastian and U. Steinhardt (eds) *Development and Perspectives of Landscape Ecology*, pp. 405–14. Kluwer Academic Publishers, Dordrecht.

Breuste, J. (2004) Decision making, planning and design for the preservation of indigenous vegetation within urban development. *Landscape and Urban Planning*, **68**: 439–52.

Breuste, J. (2006) Urban development and urban environment in Germany. *The Geographer, Delhi*: **49**(2):1–14.

Breuste, J. (2009) Structural analysis of urban landscape for landscape management in German cities. In: M. McDonnell, A. Hahs and J. Breuste, (eds) *Ecology of Cities and Towns: A Comparative Approach*, pp. 355–79. Cambridge University Press, Cambridge.

Breuste, J., Feldmann H., & Uhlmann, O. (eds). (1998) *Urban Ecology*. Springer-Verlag, Berlin.

Breuste, J., Keidel, T., Meinel, G., Münchow, B., Netzband, M., and Schramm, M. (1996) *Erfassung und Bewertung des Versiegelungsgrades befestigter Flächen*. UFZ-Bericht, Leipzig.

Breuste, J., Niemelä J., & Snep R.P.H. (2008) Applying landscape ecological principles in urban environments. *Landscape Ecology* **23**:1 139–42.

Bridgewater, P.B. (2002) Ecohydrology – a perspective from the Man and the Biosphere Programme. *Ecohydrology & Hydrobiology* **2**:13–17 .

Bridgewater, P. (2008) A new context for the Ramsar Convention: Wetlands in a changing world. *RECIEL* **17** (1): 100–106.

Bridgman, H., Warner, R., & Dodson, J. (1995) *Urban Biophysical Environments*. Oxford University Press, Oxford.

Brooks, R.H., & Corey, A.T. (1966) Properties of porous media affecting fluid flow. *J. Irrig. Drain. Soc. Civ. Eng. Div*. **2**:61–87.

Brown, C.R., & Brown, M.B. (1999) Barn swallows (Hirundo rustica). In: A. Poole and F. Gill (eds). *The Birds of North*

America, No. 452. The Birds of North America Inc., Philadelphia, P.A.

Brown, G. (2005) Mapping spatial attributes in survey research for natural resource management: methods and applications. *Society of Natural Resources* **18**:17–39.

Brown, G. (2006) Mapping landscape valuess and development preferences: a method for tourism and residential development planning. *International Journal of Tourism Research* **8**:101–13.

Brown, L.R. (2001) *Eco-Economy, Building an Economy for the Earth*. W.W. Norton & Company, New York and London.

Brown, M.A., Southworth, F., & Sarzynski. A. (2008) *Shrinking the Carbon Footprint of Metropolitan America*. Brookings Institute, Washington DC.

Brown, R.B. (1999) *Managing Soils in an Urban Environment*. American Society of Agronomy, Madison.

Brunzel, S., Fischer, S.F., Schneider, J., Jetzkowitz, J., & Brandi R. (2009) Neo- and archeophytes respond more strong than native to socio-economic mobility and disturbance patterns along an urban-rural gradient. *Journal of Biogeography* **36**:835–44.

Bryant, M.M. (2006) Urban landscape conservation and the role of ecological greenways at local and metropolitan scales *Landscape and Urban Planning* **76**:23– 44.

Buckingham, E. (1907) *Studies on the Movement of Soil Moisture*. Bulletin 38. U.S. Dept. of Agriculture, Bureau of Soils, Washington DC.

Buijs, J.A., & Van Wijnen J.H. (2001) Survey of feral rock doves (*Columba livia*) in Amesterdam, a bird-human association. *Urban Ecosystems* **5**:235–41.

Bullock, P., & Gregory, P. (eds) (1991) *Soils in the Urban Environment*. Blackwell, Oxford.

Bullock, P., Jones, R.J.A., & L. Montanarella (eds) (1999) *Soil Resources of Europe*. European soil bureau research report, 6. Ispra.

Burch, W.R., Jr., Aley, J., Conover, B., & Field, D. (1997) *Adaptive Strategies for Natural Resource Organizations in the Twenty-first Century*. Taylor Francis, Washington, DC.

Burgess, R.L., & Sharpe, D.M. (eds) (1981) *Forest Island Dynamics in Man-Dominated Landscapes*. Springer-Verlag, New York.

Burghardt, W. (1994) Soils in urban and industrial environments. *Ztschr. Pflanzenernähr. Bodenk*. **157**:205–14.

Burghardt, W. (2002) Diskussionspapier bisher bekannter Stadtböden. *Mitt. Dt. Bodenk. Ges*. **99**: S. 3–4.

Burke, M.J.W., & Grime, J.P. (1996) An experimental study of plant community invasibility. *Ecology* 77: 776–90.

Burton, E. (2000) The compact city: Just or just compact? A preliminary analysis. *Urban Studies* **37:**1969.

Burton, T.M., & Likens, G.E. (1975) Salamander populations and biomass in the Hubbard Brook Experimental Forest, New Hampshire. *Copeia* **3**:541–46.

Butler, C.D., & Oluoch-Kosura, W. (2006) Linking future ecosystem services and future human well-being. *Ecology and Society* **11**(1):30.

Butzer, K.W. (1982) *Archaeology as Human Ecology: Method and Theory for a Contextual Approach*. Cambridge University Press, Cambridge.

Butzer, K. (1996) Ecology in the long view: settlement, agrosystem strategies, ecological performance. *Journal of Field Archaeology* **23**(2):141–50.

BWW (1994) Development of methods to maintain natural infiltration of rainwater (in German: Entwicklung von Methoden zur Aufrechterhaltung der natürlichen Versickerung von Wasser). Scientific Report. BWW, Berlin Water Works, Berlin.

Byrne, K., & Nichols, R.A. (1999) *Culex pipiens* in London Underground tunnels: differentiation between surface and subterranean populations. *Heredity* **82**:7–15.

CABE (Commission for Architecture and the Built Environment) (2004) *Is the Grass Greener? Learning from International Innovations in Urban Green Space Management*. Commission for Architecture and the Built Environment, London. [online] http://www.cabe.org.uk/default.aspx?contentitemid=479 [accessed 17 October 2010].

CABE Space (2009) *Making the Invisible Visible: The Real Value of Park Assets*. Commission for Architecture and the Built Environment, London.

Cadenasso, M.L., Pickett, S.T.A., Weathers, K.C., & Jones, C.G. (2003) A framework for a theory of ecological boundaries. *BioScience* **53**:750–58.

Cadenasso, M.L., Pickett, S.T. A., & Schwarz, K. (2007) Spatial heterogeneity in urban ecosystems: Reconceptualizing land cover and a framework for classification. *Frontiers in Ecology and the Environment*, **5**(2): 80–8.

Callicott, J., & Mumford, K. (1997) Ecological sustainability as a conservation concept. *Conservation Biology* **11**: 32–40.

Canadian Biodiversity Information Network (CBIN) (2009) *Urban Biodiversity* **89**(4). [online] http://www.cbin.ec.g.ca/enjeux-issues/urbain-urban.cfm?lang=eng

Campanella, R., Etheridge, D., & Meffert, D. (2004) Sustainability, survivability and the paradox of New Orleans. In C. Alfsen-Norodom, B.D. Lane, and M. Corry (eds.) *Urban Biosphere and Society: Partnership of Cities*, pp 289–99. Ann. NY Acad. Sci. 1023; New York.

Cane, J.H. (2001) Habitat fragmentation and native bees: a premature verdict? *Conserv. Ecol*. **5**: 3. [online] (http//www.consecol.org/vol5/iss1/art3).

Caneva, G., Pacini, A., Celesti Grapow, L., & Ceschin, S. (2003) The Colosseum's use and state of abandonment as analysed through its flora. *International Biodeterioration & Biodegradation* **51**:21 1–19.

Carreiro, M., Song, Y-C., & Wu, J. (2008) *Ecology, Planning and Management of Urban Forests*. Springer, New York.

Carroll, S., & Salt, S. (2004) *Ecology for Gardeners*. Timber Press, Portland, OR.

Catton, W., Jr., & Dunlap, R.E. (1978) Environmental Sociology: A new paradigm. *The American Sociologist* **13**: 41–9.

Cawood Hellmund, P., & Somers Smith, D. (2006) *Designing Greenways. Sustainable Landscapes for Nature and People*. Island Press, Washington DC.

CBD (2000–2008) The Convention on Biological Diversity web pages: The Ecosystem Approach homepage. Decision V/6: Ecosystem Approach, COP5 2000; Decision VI/12: Ecosystem Approach, COP6 2002; Decision VII/11: Ecosystem approach, COP7 2004; Decision VIII/15: Ecosystem approach, COP8 2006; Decision IX/7: Ecosystem approach, COP9 2008. [online] http://www.biodiv.org/programmes/cross-cutting/ecosystem/ [accessed 2 September 2009].

CBD(2009)[o nline] http://www.cbd.int/ecosystem/.

Celesti-Grapow, L., & Blasi, C. (1998) A comparison of the urban flora of different phytoclimatic regions in Italy, *Global Ecology and Biogeography Letters* **7**:367 –78.

Chace, J.F., & Walsh, J.J. (2006) Urban effects on native avifauna: a review. *Landscape and Urban Planning*, **74**: 46–68.

Chai, S.L. (2003) *Establishment of the Invasive White-tailed Deer in Portland*, Jamaica. Jamaica Conservation and Development Trust. Kingston, Jamaica.

Chamberlain, D.E., Cannon, A.R., Toms, M.P., Leech, D.I., Hatchwell, B.J., & Gaston, K.J. (2009). Avian productivity in urban landscapes: a review and meta-analysis. *Ibis* **151**:1–18.

Chan, K., Shaw, M., Cameron, D., Underwood, E., & Daily, G. (2006) Conservation planning for ecosystem services. *Proceedings of the Library of Science- Biology* **4**(11): 2138–52.

Chapman, M.G., & Underwood, A.J. (2009) Comparative effects of urbanisation in marine and terrestrial Habitats. In: M.J. McDonnell, A.K. Hahs and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach*. Cambridge University Press, Cambridge.

Chapman, M.G., Blockley, D., People, J., & Clynick, B. (2009) Effect of urban structures on diversity of marine species. In: M.J. McDonnell, A.K. Hahs and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach.* Cambridge University Press, Cambridge.

Chase, J.M., Amarasekare, P., Cottenie, K., Gonzalez, A., Holt, R.D., Holyoak, M., Hoopes, M.F., Leibold, M.A., Loreau, M., Mouquet, N., Shurin, J.B., & Tilman, D. 2005. Competing theories for competitive metacommunities. In: M. Holyoak, M.A. Leibold and R.D. Holt (eds) *Metacommunities: Spatial Dynamics and Ecological Communities* pp. 335–54. University of Chicago Press, Chicago.

Chatterjee, R. (2009) Smart growth – a solution to climate change? *Environmental Science & Technology* **46**:1660.

Cheng, Z., Richmond, D.S., Salminen, S.O., & Grewal, P.S. (2008) Ecology of urban lawns under three common management programs. *Urban Ecosystems* **11**:177–95.

Chiesura, A. (2004) The role of urban parks for the sustainable city. *Landscape and Urban Planning* **68**:129–38.

Cho, S.H., Poudyal, N.C., & Roberts, R.K. (2008) Spatial analysis of the amenity value of green open space. *Ecological Economics* **66**(2–3):403–16.

Chocholoušková, Z., & Pyšek, P. (2003) Changes in composition and structure of urban flora over 120 years: a case study of the city of Plzeň. *Flora* **198**:366–76.

Choi, Y.D., & Bury, C. (2003) Process of floristic degradation in urban, and, suburban wetlands in northwestern Indiana, USA *Natural Areas Journal* **23**(4):320–31.

Christen, A., & Vogt, R. (2004) Energy and radiation balance of a Central European city. *International Journal of Climatology* **24**:1395–421.

Christie, F.J., & Hochuli, D.F. (2005) Elevated levels of herbivory in urban landscapes: are declines in tree health more than an edge effect? *Ecology and Society* **10**: 10. [online] http://www.ecologyandsociety.org/vol10/iss1/art10/.

Christopherson, R.W. (2008) *Geosystems. An Introduction to Physical Geography*. Maxwell Macmillan, New York.

Cilliers, S.S., Siebert, S.J. Davoren, E., & Lubbe. C.S. (In review) Social aspects of urban ecology in developing countries with an emphasis on urban domestic gardens. In: M. Richter and U. Weiland (eds) *Applied Urban Ecology*. Blackwell Publishing, Oxford.

Cilliers, S., Bouwman, H., & Drewes, E. (2009) Comparative urban ecological research in developing countries. In: M.J. McDonnell, A.K. Hahs and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach.* Cambridge University Press, Cambridge.

Cilliers, S.S., Schoeman, L.L., & Bredenkamp, G.J. (1998) Wetland plant communities in the Potchefstroom Municipal Area, North-West, South Africa. *Bothalia,* **28**(2): 213–29.

Cilliers, S.S., Williams, N.S.G., & Barnard, F.J. (2008) Patterns of exotic plant invasions in fragmented urban and rural grasslands across continents. *Landscape Ecology* **23**:1243–56.

City of Berlin (2009) *Berlin Digital Environmental Atlas*. Senate Department for Urban Development. [Online] http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas [accessed 23 Jul 2010].

Claritas. (1999) *PRIZM Cluster Snapshots: Getting to Know the 62 Clusters*. Claritas Corporation, Ithaca.

Claritas. (1999) *PRIZM Cluster Snapshots: Getting to Know the 62 Clusters*. Claritas Corporation, Ithaca, NY.

Clarke, K., & Warwick, R. (1998) A taxonomic distinctness index and its statistical properties. *Journal of Applied Ecology* **35**:523–31.

Clarkson, B.D., Wehi, P.M., & Brabyn, L.K. (2007) A spatial analysis of indigenous cover patterns and implications for ecological restoration in urban centres, New Zealand. *Urban Ecosystems* **10**:441–57.

Clemants, S., & Moore, G. (2003) Patterns of species richness in eight northeastern United States cities. *Urban Habitats* **1**:4–16.

Clemens, G., Bartel, L., Lehle, M., *et al*. (1997) Fachinformationssystem Bodenschutz - Modul Bodenbewertungssystem. *Mitt. Dt. Bodenk. Ges*. **85:**1 119–22.

Cloarec, A, Rivault, C., & Cariou, M.L. (1999) Genetic population structure of the German cockroach, *Blattella germanica*: absence of geographic variation. *Entomologia Experimentalis et Applicata* **92**:31 1–19.

Cohen, M.J., Carstenn, S., & Lane, C.R. (2004) Floristic quality indices for biotic assessment of depressional marsh condition in Florida. *Ecological Applications* **14**(3): 784–94.

Colding, J. (2007) Ecological land-use 'complementation' for building resilience in urban ecosystems. *Landscape and Urban Planning* **81**(1–2):46–55.

Colding, J. (In press) Creating incentives for increased public engagement in ecosystem management through urban commons. In E. Boyd and C. Folke, (eds) *Adapting Institutions: Meeting the Challenge of Global Environmental* Change. Cambridge University Press, Cambridge UK.

Colding, J., & Folke, C. (2009) The role of golf courses in biodiversity conservation and ecosystem management. *Ecosystems* **12**(2):191–206.

Colding, J., Lundberg, J., & Folke, C. (2006) Incorporating green-area user groups in urban ecosystem management. *Ambio* **35**:237–44.

Colding, J., Lundberg, J., Lundberg, S., & Andersson, E. (2009) Golf courses and wetland fauna. *Ecological Applications* **19**:1481–91.

Collins, J.P., Kinzig, A., Grimm, N.B., Fagan, W.F., Hope, D., Wu, J., & Borer E.T. (2000) A new urban ecology. *American Scientist* **88**:416–25.

Common, M., & Perrings, C. (1992) Towards an ecological economics of sustainability, *Ecological Economics* **6**(1): 7–34.

Conceicao, M.C. (1994) Aspects of preservation, maintenance and management of the urban forest in Brazil. *Journal of Arboriculture* **1**:61–8.

Conference of the Parties to the Convention on Biological Diversity (2002) Sixth meeting, The Hague, 7–19 April 2002 [online] www.cbd.int/doc/meetings/cop/cop-06/official/cop-06–05-add2-en.doc [accessed 7th September 2007].

Connell, J.H. (1978) Diversity in tropical rain forests and coral reefs. *Science* **199**:1302–10.

Connor, E.F., Hafernik, J., Levy, J., Moore, V.L., & Rickman, J.K.(2002) Insect conservation in an urban biodiversity hotspot: The San Francisco Bay area. *Journal of Insect Conservation* **6**:247–59.

Conover, M. (2002) *Resolving Human-Wildlife Conflicts: The Science of Wildlife Damage Management*. Taylor and Francis Press. Boca Raton, FL.

Cook, L.M., Mani, G.S., & Varley, M.E. (1986) Postindustrial melanism in the peppered moth. *Science* **231**:61 1–13.

Cook, W.M., & Faeth, S.H. (2006) Irrigation and land-use drive ground arthropod community patterns in an urban desert. *Environmental Entomology* **35**:1532–40.

Cooper, W.S. (1926) The fundamentals of vegetation change. *Ecology* **7**:391–413.

Corbin, J.D., & D'Antonio, C.M. (2004) Effects of exotic species on soil nitrogen cycling: implications for restoration. *Weed Technology* **18**:1464–67.

Cornelis, J., & Hermy, M. (2004) Biodiversity relationships in urban and suburban parks in Flanders. *Landscape and Urban Planning* **69**(4):385–401.

Costanza, R., dArge, R., deGroot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., ONeill, R.V., Paruelo, J., Raskin, R.G., Sutton, P., & van den Belt, M. (1997) The value of the world's ecosystem services and natural capital. *Nature* **387**:253–60.

Costanza, R., *et al*. (2007) Sustainability or collapse: what can we learn from integrating the history of humans and the rest of nature? *Ambio* **36**(7):522–27.

Cottenie K., & de Meester, L. (2004) Metacommunity structure: Synergy of biotic interactions as selective agents and dispersal as fuel. *Ecology* **85**:1 14–19.

Cottenie K., Michels, E., Nuytten, N., & de Meester, L. (2003) Zooplankton metacommunity structure: Regional vs. local processes in highly interconnected ponds. *Ecology* **84**:991–1000.

Cottrell, S.P., Lengkeek, J., & van Marwijk, R. (2005) Typology of recreation experiences: application in a Dutch forest service visitor monitoring survey. *Managing Leisure* **10**(1):54–72.

Countryside Agency, (2005) *Walking the Way to Health 2000–2005: Summary of Local Health Walk Evaluations.* Countryside Agency for England, Cheltenham, UK.

Countryside Council for Wales (2006) *Providing Accessible Natural Greenspace in Towns and Cities*. Countryside Council for Wales, Bangor. [Available from Pete Frost at the Countryside Council for Wales – p.frost@ccw.gov.uk]

Cousins, A., & Nagpaul, H. (1979) *Urban Life. The Sociology of Cities and Urban Society*. John Wiley and Sons, New York.

Cowell, R. (1997) Stretching the limits: environmental compensation, habitat creation and sustainable development. *Transactions of the Institute of British Geographers* **22**:392–406.

Craul, P.J. (1992) *Urban Soil in Landscape Design*. Wiley, New York.

Craul, P.J. (1999) *Urban Soils*. Wiley, New York.

Crispim, C.A., & Gaylarde, C.C. (2005) Cyanobacteria and biodeterioration of cultural heritage: a review, *Microbial Ecology* **49**:1–9.

Croci, S., Butet, A., & Clergeau, P. (2008) Does urbanization filter birds on the basis of their biological traits? *Condor* **110**:223–40.

Cronon, W. (2003) *Changes in the Land: Indians, Colonists, and the Ecology of New England*. Hill and Wang (eds), New York.

Crooks, K.R., & Soulé M.E. (1999) Mesopredator release and avifaunal extinctions in a fragmented system. *Nature* **400**:563–66.

Croucher, K., Myers, L., & Bretherton, J. (2007) *The Links Between Greenspace and Health: A Critical Literature Review*. University of York, York.

Crowe, T.M. (1979) Lots of weeds: insular phytogeography of vacant urban lots. *Journal of Biogeography* **6**: 169–81.

Crumley, C.L., (ed) (1994) *Historical Ecology: Cultural Knowledge and Changing Landscapes*. School of American Research Press, Santa Fe, New Mexico.

Cunningham, W.P., & Cunningham, M.A. (2009) *Environmental Science: A Global Concern*. McGraw Hill, New York, NY.

Curriero, F.C., Heiner, K.S., Samet, J.M., Zeger, S.L., Strug, L., & Patz, J.A. (2002) Temperature and mortality in eleven cities of the eastern United States. *American Journal of Epidemiology* **155**:80–7.

Dahl, T.E., & Johnson, C.E. (1991) *Status and Trends of Wetlands in the Conterminous United States, Mid-1970's to Mid-1980's*. U.S. Fish and Wildlife Service, Washington, DC.

Daily, G. (1997) *Nature's Services: Societal Dependence on Natural Ecosystems*. Island Press, Washington, DC.

Daily, G., Alexander, S., Ehrlich, P., Goulder, L., Lubchenko, J., Matson, P., Mooney, H., Postel, S., Schneider, S., Tilman, D., & Woodwell, G. (1997) Ecosystem services: benefits supplied to human societies by natural ecosystems. *Issues in Ecology* **2** (Spring): 1–16.

Dana, E.D., Vivas, S., & Mota, J.F. (2002) Urban vegetation of Almería City – a contribution to urban ecology in Spain. *Landscape and Urban Planning* **59**:203–16.

Daniels, G., & Kirkpatrick, J.B. (2006a) Comparing the characteristics of front and back domestic gardens in Hobart, Tasmania, Australia. Landscape and Urban Planning, **78**(4): 344–352.

Daniels, G., & Kirkpatrick, J.B. (2006b) Does variation in garden characteristics influence the conservation of birds in suburbia?. Biological Conservation, **133**(3): 326–335.

Daniels, T., & Lapping, M. (2005) Land preservation: an essential ingredient in smart growth. *Journal of Planning Literature* **19**:316–29.

Darlington, A. (1981) *Ecology of Walls*, London, Heinemann Educational Books.

Davey, S.P. (1967) The role of wildlife in an urban environment. *Transactions of North American Wildlife Natural Resources Conference* **32**:50–60.

Davies, J.N., & Rushton, B.S. (2008) The Flora of the Derry city walls, *Irish Botanical News* **18**:18–26.

Davies, R.G., Barbosa, O., Fuller, R.A., & Tratalos, J. (2008) City-wide relationships between green spaces, urban land-use and topography. *Urban Ecosystems* **11**:269–8 7.

Davies, Z., Fuller, R., Loram, A., Irvine, K., Sims, V., & Gaston K. (2009) A national scale inventory of resource provision for biodiversity within domestic gardens. *Biological Conservation* **142**(4):761–71.

Davis, B.N.K. (1978) Urbanisation and the diversity of insects. In: L.A. Mound and N. Waloff (eds), *Diversity of Insect Faunas*, pp. 126–38. Blackwell, London, UK.

Davis, M., (2005) *Planet of Slum*. Verso, London.

Dawes, J. (2008) *Canada Geese – A New Incursion into Australia*. Pestat Pty Ltd Canberra, Australia.

Dawson, J. Boller, I. Foster, C., & Hillsdon, M. (2006). *Evaluation of changes to physical activity amongst people who attend the walking the way to health initiative (WHI).* Oxford Brooks University and the Countryside Agency for England, Cheltenham, UK.

DCLG (2007) *The New Performance Framework for Local Authorities and Local Authroity Partnerships: A Single Set of National Indicators*. HM Government, London.

De Candido, R. (2004) Recent changes in plant species diversity in urban Pelham Bay Park, 1947–1998. *Biological Conservation* **120**:129–36.

De Groot, R. (2006) Function-analysis and valuation as a tool to assess land-use conflicts in planning for sustainable, multi-functional landscapes. *Landscape and Urban Planning* **75**:175–86.

de Kievit, J. (2001) Healthy parks, healthy people – a natural link. *Parks and Leisure Australia*, September, 20–21.

De Laet, J., & Summers-Smith, J.D. (2007) The status of the urban house sparrow *Passer domesticus* in north-western Europe: a review. *Journal of Ornithology* **148**:275–78.

de Mattos, C.A., Favi, M., Yung, V., Pavletic, C., & de Mattos, C.C. (2000) Bat rabies in urban centers in Chile. *Journal of Wildlife Diseases* **36**:231–40.

De Vore, S. (1998) Birds and buildings: a lethal combo. *Chicago Wilderness Magazine*. Spring Issue, page 2.

de Vries, S., Verheij, R.A., Groenewegen, P.P., & Spreeuwenberg, P. (2003) Natural environments – healthy environments? *Environment and Planning* **35**: 1717–31.

Decker, D.J., Brown, T.L., & Siemer, W.F. (2001) *Human Dimensions of Wildlife Management in North America*. The Wildlife Society, Bethesda, M.

Deelstra, T. (1998) Towards ecological sustainable cities: strategies, models and tools. In: J. Breuste, H. Feldmann and O. Uhlmann (eds) *Urban Ecology*. Springer, Berlin.

Defra (2007a) *Securing a Healthy Natural Environment: An Action Plan for Embedding an Ecosystems Approach*. PB12853. Defra, London. [online] http://www.defra.gov.uk/environment/policy/natural-environ/documents/eco-actionplan.pdf [accessed 17 October 2010].

Defra (2007b) *An Introductory Guide to Valuing Ecosystem Services*. PB12852. Defra, London. [online] http://www.defra.gov.uk/environment/policy/natural-environ/documents/eco-valuing.pdf [accessed 17 October 2010].

Demeny, P. (1990) Populations. In: B.L. Turner, II, W.C. Clark, R.W. Kates, J.F. Richards, J.T. Mathews, and W.B. Meyer (eds) *The Earth as Transformed by Human Action: Global and Regional Changes in the Biosphere over the Past 300 Years*. Cambridge University Press and Clark University, New York.

Deneven, W.M. (1992) The pristine myth: The landscape of the Americas in 1492. *Annals of the Association of American Geographers* **82**(3):369–86.

Denoel, M., & Lehmann, A. (2006) Multi-scale effect of landscape processes and habitat quality on newt abundance: Implication for conservation. *Biological Conservation* **130**:495–504.

Department of Health, (2004) *Choosing Health: Making Healthy Choices Easier*. HMSO, London.

DeStefano, S., & DeGraaf, R.M. (2003) Exploring the ecology of suburban wildlife. Frontiers in Ecology and the Environment **1**:95–101.

Dhakal, S., & Imura, H. (2004) *Urban Energy Use and Greenhouse Gas Emissions in Asian Mega-Cities, Policies for a Sustainable Future*. Institute for Global Environmental Strategies, Kanagawa, Japan.

Diamond, J. (1999) *Guns, Germs and Steel*. W.W. Norton and Company, New York.

Diamond, J.M. (2005) *Collapse: How Societies Choose to Fail or Succeed*. Viking, New York.

Dickman, C.R. (1996) Overview of the impacts of feral cats on Australian native fauna. Australian Nature Conservation Agency, Canberra, Australia.

Dingman, S.L. (2002) *Physical Hydrology*. 2nd edition, Macmillan Publishing Co., New York.

Dirzo, R., & Raven, P.H. (2003) Global state of biodiversity and loss. *Annual Review of Environment and Resources* **28**:137–67.

Ditchkoff, S.S., Saalfeld, S.T., & Gibson, C.J. (2006) Animal behavior in urban ecosystems: Modifications due to human-induced stress. *Urban Ecosystems* **9**:5–12.

Dobson, A.P., Bradshaw, A.D., & Baker, J. (1997) Hopes for the future: restoration ecology and conservation biology. *Science* **277**:515–22.

Donnelly, R., & Marzluff, J.M. (2004) Importance of reserve size and landscape context to urban bird conservation. *Conservation Biology* **18**:733–45.

Donnelly, R.E., & Marzluff, J.M. (2006) Relative importance of habitat quantity, structure, and spatial pattern to birds in urbanizing environments. *Urban Ecosystems* **9**:99–1 17.

Donovan, R., Sadler, J.P., & Bryson, J.R. (2005) Urban biodiversity and sustainable development. *Engineering sustainability* **158**:105–14.

Dooling, S., Graybill, J., & Greve, A. (2007) Response to Young and Wolf: Goal attainment in urban ecology research. *Urban Ecosystems* **10**:339–47.

Dorney, J.R., Guntenspergen, G.R., Keough, J.R., & Stearns, F. (1984) Composition and structure of an urban woody plant community. *Urban Ecology* **8**:69–90.

dos Reis, V.A., Lombardi, J.A., & de Figueiredo, R.A. (2006) Diversity of vascular plants growing on walls of a Brazilian city. *Urban Ecosystems* **9**:39–43.

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

Douglas, I. (2008) Psychological and mental health benefits from nature and urban greenspace. In: G. Dawe and A. Millward, (eds) *Statins and Greenspaces: Health and the Urban Environment*, pp. 12–22. UK Man & the Biosphere Committee Urban Forum. [online] http://www.ukmaburbanforum.co.uk/publications/papers/ [accessed 17 October 2010].

Douglas, I., Al-Ali, J., & Clarke, M. (1993) Lead contamination in Manchester. *Land Contamination and Reclamation* **1**(3):17–22.

Douthwaite, R. (1995) *Short Circuit*. Hartland, Green Books.

Dowle, M., & Deane, E.M. (2009) Attitudes to native bandicoots in an urban environment. *European Journal of Wildlife Research* **55**:45–52.

Drayton, B., & Primack, R.B. (1996) Plant species lost in an isolated conservation area in metropolitan Boston from 1894 to 1993. Conservation Biology **10**: 30–39.

Du Feu, C. (2002) *The BTO Nestbox Guide - BTO Guides v.23.* British Trust for Ornithology, Thetford.

Duchoslav, M. (2002) Flora and vegetation of stony walls in East Bohemia (Czech Republic), *Preslia* **74**:1–25.

Dudgeon, D., Arthington, A.H., Gessner, M.O., Kawabata, Z.I., Knowler, D.J., Leveque, C., Naiman, R.J., Prieur-Richard, A.H., Soto, D., Stiassny, M.L. J., & Sullivan C.A. (2006) Freshwater biodiversity: importance, threats, status and conservation challenges. *Biological Reviews* 81 (2): 163–82.

Dunlap, R.E., & Catton, W. Jr. (1994) Struggling with human exemptionalism: the rise, decline, and revitalisation of environmental sociology. *The American Sociologist* **25**: 5–30.

Dunn, C.P. (ed.) (2000) *The Elms: Breeding, Conservation, and Disease Management*. Kluwer Academic Publishers, Boston.

Dunn, C.P., & Loehle, C. (1988) Species-area parameter estimation: testing the null model of lack of relationship. *Journal of Biogeography* **15**:721–28.

Dunn, C.P., Sharpe, D.M., Guntenspergen, G.R., Stearns, F., & Yang, Z. (1991) Methods for analyzing temporal changes in landscape pattern. In: M.G. Turner and R.H. Gardner, (eds) *Quantitative Methods in Landscape Ecology*, pp. 173–98. Springer-Verlag, New York.

Dunn, R.R., Gavin, M.C., Sanchez, M.C., & Solomon, J.N. (2006) The pigeon paradox: dependence of global conservation on urban nature. *Conservation Biology* **20**: 1814–16.

Dunnett, N., & Hitchmough, J. (2004) *The Dynamic Landscape: Design, Ecology and Management of Naturalistic Urban Planting*. Taylor & Francis, London and New York.

Dunnett, N., & Kingsbury, N. (2004) *Planting Green Roofs and Living Walls*. Timber Press, Portland, Oregon.

Durban Metropolitan Open Space System (1999). [online] http://www.ceroi.net/reports/durban/response/envman/dmoss.htm [accessed 17 December 2010].

Duvigneaud P. (1974) L'écosystème "Urbs". Memoires de la Société royale Botanique de Belgique 6, 5–36.

DWD (Deutscher Wetterdienst German Weather Service) (1997) *Storm Rainfall Depth in Germany – Coordinated Storm Rainfall Regionalisation* (in German: Starkniederschlagshöhen für Deutschland – KOSTRA). Selbstverlag DWD. Offenbach am Main.

Dyer, M.I., & Holland, M.M. (1988) UNESCO's Man and the Biosphere Program, *BioScience* **38**:635–41.

EcoTec (2008) *Economic Benefits of Green Infrastructure: Report to the NWDA*.

EEA (2002) Towards an urban atlas: Assessment of spatial data on 25 European cities and urban areas. *Environmental Issues Report No. 30*, pp. 117. European Commission Joint Research Centre, Copenhagen.

EEA (2006) *Urban Sprawl in Europe: The Ignored Challenge*, pp. 56. European Commission, Joint Research Centre, Copenhagen.

EEA (2009) *Ensuring Quality of Life in Europe's Cities and Towns*, pp. 108. European Commission, Copenhagen.

Effland, W.R., & Pouyat, R.V. (1997) The genesis, classification, and mapping of soils in urban areas. *Urban Ecosystems* **1**(4):217–28.

Egerton, F.N. (1983) The history of ecology: achievements and opportunities: Part one. *J. Hist. Biol.* **16**:259–31 1.

Egerton, F.N. (1985) The history of ecology: achievements and opportunities: Part two. *J. Hist. Biol.* **18**:103–43.

Egerton, F.N. (1993) The history and present entanglements of some general ecological perspectives. In: M.J. McDonnell and S.T.A. Pickett (eds) *Humans as Components of Ecosystems: Subtle Human Effects and the Ecology of Populated Areas*. Springer-Verlag: New York.

Eglington, S.M., Gill, J.A., Bolton, M., Smart, M.A., Sutherland, W.J., & Watkinson, A.R. (2008) Restoration of wet features for breeding waders on lowland grassland. *J. Appl. Ecol.* **45**:305–14.

Ehrenfeld, J. (2000a) Evaluating wetlands within an urban context. *Urban Ecosystems* **4**:69–85.

Ehrenfeld, J.G. (2000b) Defining the limits of restoration: The need for realistic goals. *Restoration Ecology* **8**(1): 2–9.

Ehrenfeld, J.G. (2005) Vegetation of forested wetlands in urban and suburban landscapes in New Jersey. *Journal of the Torrey Botanical Society* **132**(2):262–79.

Ehrenfeld, J.G., (2008) Exotic invasive species in urban wetlands: environmental correlates and implications for wetland management. *Journal of Applied Ecology* **45**(4): 1160–69.

Ehrenfeld, J.G., & Schneider, J.P. (1991) Chamaecyparis thyoides wetlands and suburbanization: effects on hydrology, water quality and plant community composition. *Journal of Applied Ecology* **28**:467–90.

Ehrenfeld, J.G., & Schneider, J.P. (1993) Responses of forested wetland vegetation to perturbations of water chemistry and hydrology. *Wetlands* **13**(2):122–29.

Ehrlich, P.R., & Ehrlich, A. (1981) *Extinction: The Causes and Consequences of the Disappearance of Species*. Random House, New York.

Ehrlich, P., & Walker, B. (1998) Redundancy and rivets. *Bioscience* **48**:387.

Ellaway, A., Macintyre, S., Mutrie, N., & Kirk, A. (2007) Nowhere to play? The relationship between the location of outdoor play areas and deprivation in Glasgow. *Health & Place* **13**:557–61.

Ellis, E.C. (2000) Measuring change. *Frontiers in Ecology and the Environment* **6**:66–67.

Ellis, E.C., Wang, H., Xiao, H.S., Peng, K., Liu, X.P., Li, S.C., Ouyang, H., Cheng, X., & Yang, L.Z. (2006) Measuring long-term ecological changes in densely populated landscapes using current and historical high resolution imagery. *Remote Sensing of Environment* **100**: 457–73.

Ellis, S., & Mellor, A. (1995) *Soils and Environment*. Routledge Physical Environment series. Routledge Chapman & Hall, New York.

Ellison, A.M., Bank,M.S, Barker-Plotkin, A.A., Clinton, B.D., Colburn, E.A., Elliott, K., Ford, C.R., Foster, D.R., Jefts, S., Kloeppel, B.D., Knoepp, J.D., Lovett, G.M., Malloway, J., Mathewson, B., McDonald, R., Mohan, J., Orwig, D.A., Rodenhouse, N.L., Sobczak, W.V., Stinson, K.A., Snow, P., Stone, J.K., Swan, C.M., Thompson, J., Von Holle, B., & Webster, J.R. (2005) Loss of foundation species: consequences for the structure and dynamics of

forested ecosystems. *Frontiers in Ecology and the Environment* **3**:479–86.

Elmqvist T., Alfsen C., & Colding J. (2008) Urban systems. In: S.E. Jørgensen and B.D. Fath, (eds) *Ecosystems. Encyclopedia of Ecology*, Vol 5, pp. 3665–72. Elsevier, Oxford.

Elmqvist, T., Colding, J., Barthel, S., Borgström, S., Duit. A., Lundberg, J., Andersson, E., Ahrné, K., Erntson, H., Folke, C., & Bengtsson, J. (2004) The dynamics of social-ecological systems in urban landscapes: Stockholm and the national urban park, Sweden. *Annals of the New York Academy of Sciences* **1023**:308–22.

ELSA (European Land and Soil Alliance e.V.) (2007) *Soil and Land Alliance of European Cities and Town*s. [online] http://www.bodenbuendnis.org/en/welcome/ [accessed 31 March 2009].

English Nature (1996) *A Space for Nature*. English Nature (now Natural England), Peterborough. [online] http://naturalengland.etraderstores.com/NaturalEnglandShop/IN46 [accessed 17 December 2010].

English Nature & RSPB (2006) *Using a Planning Gain Supplement for Nature Conservation Purposes*. English Nature Research Report 672. English Nature (now Natural England), Peterborough. [online] http://naturalengland.etraderstores.com/NaturalEnglandShop/R672 [accessed 18 December 2009].

Entrikin, N.J. (1991) *The Betweeness of Place: Towards a Geography of Modernity*. Johns Hopkins University Press, Baltimore.

Erickson, W.P., Johnson, G.D., Strickland, M.D., Young, Jr, D.P., Sernka, K.J., & Good, R.E. (2001) Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States. Western EcoSystem Technology Inc., Wyoming.

Ernstson, H., Sörlin, S., & Elmqvist, T. (2008) Social movements and ecosystem services–the role of social network structure in protecting and managing urban green areas in Stockholm. *Ecology and Society* 13(2): 39. [online] http://www.ecologyandsociety.org/vol13/iss2/art39/.

Ervin, G.N., Herman, B.D., Bried, J.T., & Holly, D.C. (2006) Evaluating non-native species and wetland indicator status as components of wetland floristic assessment. *Wetlands* **26**(4):1 114–29.

Escobedo, F.J., Nowak, D.J., Wagner, J.E., de la Maza, C.L., Rodriguez, M., Crane, D.E., & Hernandez, J. (2006) The socioeconomics and management of Santiago de Chile's public urban forests. *Urban Forestry and Urban Greening* **4**:105–14.

Escudero, A. (1996) Community patterns on exposed cliffs in a Mediterranean calcareous mountain, *Vegetatio* **125**: 99–110.

Esteve, M.A., Carreño, M.F., Robledano, F., Martínez-Fernández, J., & Miñano, J. (2008) Dynamics of coastal wetlands and land-use changes in the watershed: implications for the biodiversity. In: R.E. Russo (ed), *Wetlands: Ecology, Conservation and Restoration,* pp. 133–75. Nova Science, New York.

Eswaran, H., Rice, T., Ahrens, R., & Stewart, B.A. (eds) (2003) *Soil Classification: A Global Desk Reference.* CRC Press, Boca Raton, FL.

eThekwini Municipality (2001) *eThekwini Environmental Services Management Plan 2001*. Environmental Management Branch, Development Planning and Management Unit, the eThekwini Municipality, Durban.

eThekwini Municipality (2003) *eThekwini Environmental Services Management Plan* 2003 . Environmental Management Branch, Development Planning and Management Unit, the eThekwini Municipality, Durban. [illustrated summary available online] http://www.cbd.int/doc/presentations/cities/mayors-01/mayors-01-southafrica-03-en.pdf [accessed 17 October 2010].

eThekwini Municipality & Local Action for Biodiversity (2007) *eThekwini Municipality Biodiversity Report 2007*. eThekwini Municipality, Durban & Local Action for Biodiversity, Vlaeberg, South Africa. [online] http://www.iclei.org/index.php?id=9236 [accessed 17 October 2010].

Evans, K.L., Newson, S.E., & Gaston, K.J. (2009) Habitat Influences on urban avian assemblages. *Ibis* **151**: 19–39.

Eversham, B.C., Roy, D.B., & Telfer, M.G. (1996) Urban, industrial and other manmade sites as analogues of natural habitats for Carabidae. *Annales Zoologici Fennici* **33**:149–56.

Faber-Taylor, A., Kuo, F.E., & Sullivan, W.C. (2001) Coping with ADD: The surprising connection to green play settings. *Environment and Behaviour* **33**:54–77.

Fackler, M. (2008) Japan fights crowd of crows. *New York Times*. 7 May 2008 [online] http://www.nytimes.com/2008/05/07/world/asia/07crows.html.

Faeth, S.H., Warren, P.S., Shochat, E., & Marussich, W.A. (2005) Trophic dynamics in urban communities. *BioScience* 55: 399–407.

Faeth, S.H., & Kane, T.C. (1978) Urban biogeography. City parks as islands for Diptera and Coleoptera. *Oecologia* **32**:127–33.

Fairmont Park Commission. (1999). *Fairmount Park System. Natural Lands Restoration Master Plan.* Volume 1, General Observations. [online] http://www.ansp.org/research/pcer/projects/fairmont/[accessed 15 March 2009].

Falk, J.H. (1980) The primary productivity of lawns in a temperate environment. *Journal of Applied Ecology* **17**: 689–96.

Fanelli, G., Tescarollo, P., & Testi, A. (2006) Ecological indicators applied to urban and suburban floras. *Ecological Indicators* **6**:444–57.

FAO. (2009) Aquastat Rome: Food and Agriculture Organization.

Fayt, P., Dufrêne, M., Banquart, E., Hastir, P., Pontégnie, C., Henin, J.-M., & Versteirt, V. (2006) Contrasting responses of saproxylic insects to focal habitat resources: the example of longhorn beetles and hoverflies in Belgian deciduous forests. *Journal of Insect Conservation* **10**:129–50.

Fellenberg, G. (1994) *Boden in Not: Vergiftet, Verdichtet, Verbrauc*ht. *Eine Lebensgrundlage wird zerstört*. Fischer, Stuttgart.

Felson, A.J., & Pickett, S.T.A. (2005) Designed experiments: new approaches to studying urban ecosystems. *Frontiers in Ecology* **3**:549–56.

Ferguson, B.K. (2005) *Porous Pavements*. Taylor and Francis Group. New York.

Fernández-Juricic, E. (2000) Avifaunal use of wooded streets in an urban landscape. *Conservation Biology* **14**: 513–21.

Fernandez-Juricic, E., Sallent, A., Sanz, R., & Rodriguez-Prieto, I. (2003) Testing the risk-disturbance hypothesis in a fragmented landscape: nonlinear responses of house sparrows to humans. *The Condor* **105**:316–26.

Fetzer, K.D. (2002) Durch Aufbringen und Einbringen von Materialien hergestellte Böden. *Mitt. Dt. Bodenk. Ges*. **99**: 7–8.

Fiedler, H.J. (2001) *Böden und Bodenfunktionen in Ökosystemen, Landschaften und Ballungsgebieten*. Expert Verlag, Renningen-Malmsheim.

Fiedler, P.L., White, P.S., & Leidy, R.A. (1997) The paradigm shift in ecology and its implications for conservation. In: S.T.A. Pickett, R.S. Ostfield, M. Shachak, and G.E. Likens (eds) *The Ecological Basis of Conservation*. Chapman and Hall, New York.

Filion, P. (2009) The mixed success of nodes as a smart growth planning policy. *Environment and Planning B: Planning and Design* **36**:505–21.

Fisher, C.T., Brett, J., & Feinman, G.F. (2009) *The Archaeology of Environmental Change: Socionatural Legacies of Degradation and Resilience*. University of Arizona Press.

Flanary, W., McGinley, M., & Johnson, G. (2008) *Environmental effects of the Chernobyl accident. Encyclopedia of Earth*. Environmental Information Coalition, National Council for Science and the Environment. Washington, DC.

Fletcher, T.D., & Deletić, A. (eds) (2007) *Data Requirements for Integrated Urban Water Management*. Urban Water Series. UNESCO-IHP, Paris.

FLL (2002) *Guideline for the Planning, Execution and Upkeep of Green-roof Sites* pp. 96. German Landscape, Research, Development and Construction Society Bonn, Germany.

Florgård, C. (2004) Preservation of indigenous vegetation in urban areas – an introduction. *Landscape and Urban Planning*, 8, 343–5.

Folke, C., S. *et al*. (2002) *Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations*. Scientific background paper on resilience for the World Summit on Sustainable Development. The Environmental Advisory Council to the Swedish Government.

Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005) Adaptive governance of social-ecological systems. *Annu. Rev. Environ. Resour*. **30**:441–73.

Fonseca, D.M., Keyghobadi, N., Malcolm, C.A., Mehmet, C., Schaffner, F., Mogi, M., Fleischer, R., & Wilkerson, R.C. (2004) Emerging vectors in the *Culex pipiens* complex. *Science* **303**:1535–38.

Forbes, S., Cooper, D., & Kendle, A.D. (1997) The objectives of urban nature conservation. In: T. Kendle, and S. Forbes (eds) *Urban Nature Conservation*. E&FN SPON, London.

Foresman, T.W., Pickett, S.T.A., & Zipperer, W.C. (1997) Methods for spatial and temporal land-use and land cover assessment for urban ecosystems and application in the greater Baltimore-Chesapeake region. *Urban Ecosystems* **1**:201–16.

Forestry Commission (2005) *Woodland Management for Bats*, pp. 16. Forestry Commission for England & Wales, Wetherby, UK.

Forman, R.T.T. (1995) *Land Mosaics: The Ecology of Landscapes and Regions.* Cambridge University Press, Cambridge.

Forman, R.T.T. (2008) *Urban Regions: Ecology and Planning Beyond the City*. Cambridge University Press, Oxford.

Forman, R.T.T., & Alexander, L.E. (1998) Roads and their major ecological effects. *Annual Review of Ecology and Systematics* **29**:207–31.

Foster, D.F. (2000) Conservation lessons and challenges from ecological history. *Forest History Today*, Fall 2000. Forest History Society, Durham, NC.

Foster, D.R. (2002) Conservation issues and approaches for dynamic cultural landscapes. *Journal of Biogeography* **29**:1533–35.

Foster, D., Swanson, F., Aber, J., Burke, I., Brokaw, N., Tilman, D., & Knapp A. (2003) The importance of land-use legacies to ecology and conservation. *Bioscience* **53**:77–88.

Francis, R.A., & Hoggart, S.P.G. (2008) Waste not, want not: The need to utilize existing artificial structures for habitat improvement along urban rivers. *Restoration Ecology* **16**:373–81.

Francis, R.A., & Hoggart, S.P.G. (2009). Urban river wall habitat and vegetation: observations from the River Thames through central London. *Urban Ecosystems* **12**: 465–85.

Frankie, G.W., & Ehler, L.E. (1978) Ecology of insects in urban environments. *Annual Review of Entomology* **23**: 367–87.

Frankie, G.W., Thorp, R.W., Schindler, M., Hernandez, J., Ertter, B., & Rizzardi, M. (2005) Ecological patterns of bees and their host ornamental flowers in two northern Californian cities. *Journal of the Kansas Entomological Society* **78**:227–46.

Fraser, E.D.G., & Kenney, W.A. (2000) Cultural background and landscape history as factors affecting perceptions of the urban forest. *Journal of Arboriculture* **26**:106–12.

Freilich, R.H. (1999) *From Sprawl to Smart Growth: Successful Legal, Planning, and Environmental Systems*. American Bar Association, Chicago.

Frumkin, H., Frank L., & Jackson, R. (2004) *Urban Sprawl and Public Health: Designing, Planning, and Building for Healthy Communities.* Island Press, Washington DC.

Fuller, R.A., & Gaston, K.J. (2009) The scaling of green space coverage in European cities. *Biology Letters* **5**: 352–55.

Fuller, R.A., Irvine, K.N., Devine-Wright, P., Warren, P.H., & Gaston, K.J. (2007) Psychological benefits of green-space increase with biodiversity. *Biology Letters* **3**: 390–94.

Fuller, R.A., Warren, P.H., Armsworth, P.R., Barbosa, O., & Gaston, K.J. (2008) Garden bird feeding predicts the structure of urban avian assemblages. *Diversity and Distributions* **14**:131–37.

Fulton, W., Pendall, R., Nguyen, M., & Harrison, A. (2001) *Who Sprawls Most? How Growth Patterns Differ Across the U.S.* The Brookings Institution, Washington, DC. [online] www.brook.edu/dybdocroot/urban/fulton-pendall.htm.

Funk, W.C., Greene, A.E., Corn, P.S., & Allendorf, F.W. (2005) High dispersal in a frog species suggests that it is vulnerable to habitat fragmentation. *Biological Letters* **1**: 13–16.

Gallent, N., & Shaw, D. (2007) Spatial planning, area \ ction plans and the rural-urban fringe. *Journal of Environmental Planning and Management* **50**:617 –38.

Gandy, M. (2005) Planning, anti-planning and the infra-structure crisis facing metropolitan lagos. *Urban Studies* **43**(2):371–96.

Garber, S.D. (1987) *The Urban Naturalist*. Wiley & Sons, New York.

Garden, J.G., McAlpine, C.A., Possingham, H.P., & Jones, D.N. (2007) Habitat structure is more important than vegetation composition for local-level management of native terrestrial reptile and small mammal species living in urban remnants: A case study from Brisbane, Australia. *Austral Ecology* **32**:669–85.

Gasith, A., & Sidis, I. (1984) Polluted water bodies, the main habitat of the Caspian terrapin (*Mauremys caspica rivulata*) in Israel. *Copeia* **1984**:216–19.

Gaston, K.J. (2005) Biodiversity and extinction: species and people. *Progress in Physical Geography* **29**:239–47.

Gaston, K., Smith, R., Thompson, K., & Warren, P. (2005) Urban domestic gardens (II): experimental test of methods for increasing biodiversity. *Biodiversity and Conservation* **14**(2):395–413.

Gayda, S., *et al*. (2003) The SCATTER project – Paper presented at the European Transport Conference 2003, Strasbourg, October 2003. [online] www.casa.ucl.ac.uk/scatter/download/ETC_scatter_gayda.pdf [accessed on November 2009].

Gee, J.H.R., Smith, B.D., Lee, K.M., & Griffiths, S.W. (1997) The ecological basis of freshwater pond management for biodiversity. *Aquatic Conservation-Marine and Freshwater Ecosystems* **7**:91–104.

Geis, A.D. (1980) Elements of urban wildlife program. *The Wildlifer* **180**.

Geras'kin, S.A., Fesenko, S.V., & Alexakhin, R.M. (2008) Effects of non-human species irradiation after the Chernobyl NPP accident. *Environment International* **34**: 880–97.

Gibbons, J.W. (2003) Terrestrial habitat: a vital component for herpetofauna of isolated wetlands. *Wetlands* **23**: 630–35.

Gibbs, J.P. (1998) Distribution of woodland amphibians along a forest fragmentation gradient. *Landscape Ecology* **13**:263–68.

Giddens, A. (1984) *The Constitution of Society: Outline of the Theory of Structuration*. Polity Press, Cambridge.

Gidlof-Gunnarsson, A., & Ohrstrom, E. (2007) Noise and well-being in urban residential environments: The potential role of perceived availability to nearby green areas. *Landscape and Urban Planning* **83**:1 15–26.

Gilbert, O. (1989) *The Ecology of Urban Habitats*. Chapman & Hall, London.

Gilbert, O. (1992) *Rooted in Stone: The Natural Flora of Urban Walls*, English Nature, Peterborough, UK.

Giles, C., & Clout, M. (2003) The prey of domestic cats (*Felis catus*) in two suburbs of Auckland City, New Zealand. *Journal of the Zoological Society of London* **259**: 309–15.

Giles-Corti, B., & Donovan, R.J. (2002) Socioeconomic status differences in recreational physical activity levels and real and perceived access to a supportive physical environment. *Preventive Medicine* **35**:601–1 1.

Gill, S.E. (2006) Climate Change and Urban Greenspace. Unpublished PhD thesis, School of Environment and

Development, University of Manchester. [online] http://www.ginw.co.uk/resources/Susannah_PhD_Thesis_full_final.pdf [accessed 17 September 2009].

Gill, S., Handley, J., Ennos, R., & Pauleit, S. (2007) Adapting cities for climate change: the role of the green infrastructure. *Journal Built Environment* **33**(1): 115–33.

Gill, S., Handley, J., Pauleit, S., Ennos, R., Theuray, N., & Lindley, S. (2008) Characterising the urban environment of UK cities and towns: a template for landscape planning in a changing climate. *Landscape and Urban Planning* **87**:210–22.

Girardet H. (2004) *Cities People Planet*. Wiley, Chichester.

Girling, C., & Kellett, R. (2005) *Skinny Streets and Green Neighborhoods: Design for Environment and Community*. Island Press, Washington, DC.

Givoni, B. (1991) Impact of planted areas on urban environmental quality: a review. *Atmospheric Environment* **25B**(3):289–99.

Glaeser, E.L. (1998) Are cities dying? *Journal of Economic Perspectives* **12**(2):139–60.

Glandt, D. (2003) *Der Kolkrabe*. AULA-Verlag, Wiebelsheim, Germany.

Glista, D.J., DeVault, T.L, & DeWoody, J.A. (2008) Vertebrate road mortality predominantly impacts amphibians. *Hepetological Conservation and Biology* **3**: 77–87.

Gloor, S.F. (2002) The Rise of Urban Foxes (*Vulpes vulpes*) in Switzerland and Ecological and Parasitological Aspects of a Fox Population in the Recently Colonized cCty of Zurich. Ph. D. Dissertation. University of Zurich. Zurich, Switzerland.

GMEU (Greater Manchester Ecology Unit) (2001) *Greater Manchester Biodiversity Action Plan*. Greater Manchester Ecology Unit, Manchester.

Gobster, P.H. (2002) Managing urban parks for a racially and ethnically diverse clientele *Leisure Sciences* **24**: 143–59.

Gobster, P.H., & Westphal, L.M. (2004) The human dimensions of urban greenways: planning for recreation and related experiences. *Landscape and Urban Planning* **68**: 147–65.

Gobster, P.H., Nassauer, J.I., Daniel, T.C., & Fry, G. (2007) The shared landscape: what does aesthetics have to do with ecology? *Landscape Ecology* **22**: 959–72.

Godefroid, S. (2001) Temporal analysis of the Brussels flora as indicator for changing environmental quality. *Landscape and Urban Planning* **52**:203–24.

Godefroid, S., & Koedam, N. (2003) Distribution pattern of the flora in a peri-urban forest: an effect of the city-forest ecotone. *Landscape and Urban Planning* **65**:16 9–85.

Godefroid, S., & Koedam, N. (2007) Urban plant species patterns are highly driven by density and function of built-up areas. *Landscape Ecology* **22**:1227–39.

Godefroid, S., Monbaliu, D., & Koedam, N. (2007) The role of soil and microclimatic variables in the distribution patterns of urban wasteland flora in Brussels, Belgium, *Landscape and Urban Planning* **80**:45–55.

Gordon, A., Simondson, D., Whie, M., Moilanen, A., & Bekessy, S.A. (2009) Integrating conservation planning and landuse planning in urban landscapes. *Landscape and Urban Planning* **91**:183–94.

Gosselink, J.G., & Maltby, E. (1990) Wetland losses and gains. In: M. Williams (ed) *Wetlands: A Threatened Landscape,* pp. 296–322. Basil Blackwell, Cambridge, Massachusetts.

Gosser, A.L., Conover, M.R., & Messmer. T.A. (1997) *Managing Problems Caused by Urban Canada geese*. Berryman Institute Publication 13. Utah State University, Logan.

Grant, B.W. (2003) 'Campus Ecology' as a means to urban environmental literacy. In: A.R. Berkowitz, C.H. Nilon, and K.S. Holweg (eds) *Understanding Urban Ecosystems: A New Frontier for Science and Education*, pp. 355–69. Springer-Verlag, New York.

Grant, B.W., Tucker, A.D., Lovich, J.E., Mills, A.M., Dixon, P.M., & Gibbons, J.W. (1992) The use of coverboards in estimating patterns of reptile and amphibian biodiversity. In: D.R. McCullough and R.H. Barrett (eds) *Wildlife 2001: Populations*, pp. 379–403, Elsevier Science Publ., Inc., London.

Grant, G. (2006) Extensive green roofs in London, *Urban Habitats* **4**:51–65.

Grant, G., Engelback, L., Nicholson, B., Gedge, D., Frith, M., & Harvey, P. (2003) Green roofs: their existing status and potential for conserving biodiversity in urban areas. *English Nature, Research Report No. 498*.

Greater London Authority (2001) *Green Spaces Investigative Committee. Scrutiny of Green Spaces in London*. Greater London Authority, London.

Greater London Authority (2002) *Connecting with London's Nature: the Mayor's Biodiversity Strategy*. Appendix 1, A1.2.13, p. 118. Greater London Authority, London. [online] 'http://legacy.london.gov.uk/mayor/strategies/biodiversity/docs/strat_full.pdf [accessed 17 October 2010].

Greater London Authority (2008) *East London Green Grid Framework Supplementary Planning Guidance*. Greater London Authority, London. [online] http://static.london.gov.uk/mayor/strategies/sds/docs/spg-east-lon-green-grid-08.pdf (accessed 17 October 2010).

Green Infrastructure North West (2007) Green Infrastructure – our natural life support system: Benefits

and values of green infrastructure. [online] http://www.greeninfrastructurenw.co.uk/html/index.php [accessed 13 August 2008].

Greenspace Scotland (2009) *State of Scotland's Greenspace 2009*. Greenspace Scotland, Stirling.

Greer, D.M. (1983) Urban waterfowl population. Ecological evaluation of management and planning. *Environmental Management* **6**:217–29.

Greer, K., & Stow, D. (2003) Vegetation type conversion in Los Penasquitos Lagoon, California: An examination of the role of watershed urbanization. *Environmental Management*, **31**(4):489–503.

Gregory, S., & Wright, I. (2005) Creation of patches of bare ground to enhance the habitat of ground-nesting bees and wasps at Shotover Hill, Oxfordshire, England. *Conservation Evidence* **2**:139–41.

Greiner, G., & Gelbrich, H. (1975) *Grünflächen der Stadt: Grundlagen für die Planung*, Verlag f. Bauwesen, Berlin.

Greller, A.M., Durando, C., Marcus, L.F., Wijensundara, S.A., Byer, M.D., Cook, R., & Tanacredi, J.T. (2000) Phytosociological analysis of restored and managed grassland habitat within an urban national park. *Urban Ecosystems* **4**:293–319.

Grime, J.P. (1977) Evidence for the existence of three primary strategies in plants and its relevance to ecological and evolutionary theory. *The American Naturalist* **111**: 1169–93.

Grime, J.P. (2002) *Plant Strategies, Vegetation Processes and Ecosystem Properties.* Wiley, Chichester.

Grimm, N., & Redman C. (2004) Approaches to the study of urban ecosystems: the case of central Arizona - Phoenix. *Urban Ecosystems* **7**:199–213.

Grimm, N.B., Grove, J.M., Pickett, S.T.A., & Redman, C.L. (2000). Integrated approaches to long-term studies of urban ecological systems. *BioScience* **50**:571–84 .

Grimm, N., Revilla, E., Berger, U., Jeltsch, F., Mooiji, W.M., Railsback, S.F., Thulke, H.-H., Weiner, J., Wiegand, T., & DeAngelis, D.L. (2005) Pattern-oriented modeling of agent-based complex systems: Lessons from ecology. *Science* **310**:987–991.

Grimm, N.B., Faeth S.H., Golubiewski, N.E., Redman, C.L., Wu J., Bai, X., and Briggs, J.M. (2008) Global change and the ecology of cities. *Science* **319**: 756–60.

Grimmond, C.S.B., & Oke, T.R. (1998) Variability of urban evaporation rates with land-use. In: *Pre-prints Second Urban Environment Symposium, Albuquerque, New Mexico, November, 1998*, pp. 247–50. American Meteorological Society, Boston.

Grimmond, C.S.B., & Oke, T.R. (1999) Rates of evaporation in urban areas. In: B. Ellis (ed) *Impacts of Urban Growth on Surface and Ground Waters*, pp. 235–43. International Association of Hydrological Sciences, Publication No. 259 Wallingford.

Grodzinski, W., Weiner, J., & Maycock, P.F. (eds) (1984) *Forest Ecosystems in Industrial Regions*. Springer Verlag, New York.

Groffman, P.M., Boulware, N.J., Zipperer, W.C., Pouyat, R.V., Band, L.E., & Colosimo, M.F. (2002) Soil nitrogen cycle processes in urban riparian zones. *Environmental Science and Technology* **36**:4547–52.

Groffman, P.M., Bain D.J., Band L.E., Belt K.T., Brush G.S., Grove J.M., Pouyat R.V., Yesilonis I.C., & Zipperer, W.C. (2003) Down by the riverside. *Frontiers in Ecology and the Environment* **1**:315–21.

Gröngröft, A., Hochfeld, B., & Miehlich, G. (2000) Funktionale Bewertung von Böden bei großmaßstäbigen Planungsprozessen: Konzept und offene Fragen eines für die Stadt Hamburg entwickelten Verfahrens. *Mitt Dt. Bodenk. Ges*. **93**:15–8.

Grove, J.M., Burch, W.R. Jr., & Pickett, S.T.A. (2005) Social mosaics and urban community forestry in Baltimore, Maryland. In: R.G. Lee and D.R. Field, (eds) *Communities and Forests: Where People Meet the Land*, pp. 249–73. Oregon State University Press, Corvallis.

Grove, M., Cadenasso, M.L., Burch, W.R. Jr., Pickett, S.T.A., Schwarz, K., O'Neil-Dunne, J., & Wilson, M. (2006) Data and methods comparing social structure and vegetation structure of urban neighborhoods in Baltimore, Maryland. *Society and Natural Resources* **19**: 117–36.

Grove, J.M., Troy, A.R., O'Neil-Dunne, J.P.M., Jr, W.R.B., Cadenasso, M.L., & Pickett, S.T.A. (2006) Characterization of households and its implication for the vegetation of urban ecosystems. *Ecosystems* **9**: 578–97.

Grubb, P.J. (1976) A theoretical background to the conservation of ecologically distinct groups of annuals and biennials in the chalk grassland ecosystem, *Biological Conservation* **10**:53–76.

GRUMP alpha. (2004) *Global Rural-Urban Mapping Project*: Center for International Earth Science Information Network (CIESIN), Columbia University; International Food Policy Research Institute (IFPRI); The World Bank; and Centro Internacional de Agricultura Tropical (CIAT). [online] http://sedac.ciesin.columbia.edu/gpw/.

Guggenheim, E. (1992) Mauervegetation in der Stadt Zürich. *Berichte des Geobotanischen Institutes der Eidgenössischen Technischen Hochschule Stiftung Ruebel* **58**: 164–91.

Gunderson, L.H. (1999) Resilience, flexibility and adaptive management: antidotes for spurious certitude? *Conservation Ecology* **3**: Art. 7. [online] URL: http://www.consecol.org/vol3/iss1/art7/

Gunderson, L.H., & Holling, C.S. (eds) (2002) *Panarchy Understanding Transformations in Human and Natural Systems*. Island Press, Washington, DC.

Gunderson, L.H., & Folke, C. (2003) Toward a 'Science of the Long View'. *Conservation Ecology* 7(1): 15.

Guntenspergen, G.R., & Levenson, J.B. (1997) Understory plant species composition in remnant stands along an urban-to-rural land-use gradient. *Urban Ecosystems* **1**: 155–69.

Haase, D., & Nuissl, H. (2007) Does urban sprawl drive changes in the water balance and policy? The case of Leipzig (Germany) 1870–2003. *Landscape and Urban Planning* **80**:1–13.

Haber, W. (1999) Nachhaltigkeit als Leitbild einer natur- und sozialwissenschaftlichen Umweltforschung. In A. Daschkeit and W. Schröder (eds): *Umweltforschung Quergedacht: Perspektiven Integrativer Umweltforschung und Umwelt –lehre*, pp. 127–46. Springer, Berlin.

Hadidian, J. (2007) *Wild Neighbors: The Humane Approach to Living with Wildlife*. Humane Society Press, Washington, DC.

Hahs, A.K., & McDonnell, M.J. (2007) Composition of the plant community in remnant patches of grassy woodland along an urban-rural gradient in Melbourne, Australia. *Urban Ecosystems* **10**:355–77.

Hahs, A.K., McDonnell, M.J., & Breuste, J.H. (2009) A comparative ecology of cities and towns: synthesis of opportunities and limitations. In: M.J. McDonnell, A.K. Hahs and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach*, pp. 574–96. Cambridge University Press, Cambridge.

Haines, M.R. (2001) The urban mortality transition in the United States, 1800–1940. NBER Working Paper Series on Historical Factors in Long Run Growth, No. 20. National Bureau of Economic Research, Cambridge, UK.

Hajer, M.A. (2003) *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford Scholarship Online, Oxford.

Hallis, S. (2000) *Your Healthy Garden Pond.* Interpret Publishing, Dorking.

Hamabata, E. (1980) Changes of herb-layer species composition with urbanization in secondary oak forests of Musashino Plain near Tokyo – studies on the conservation of suburban forest stands I. *Japanese Journal of Ecology* **30**:347–58.

Hamberg, L., Lehvävirta, S., & Kotze, D.J. (2009) Forest edge structure as a shaping factor of understorey vegetation in urban forests in Finland. *Forest Ecology and Management* **257**:712–22.

Handley, J., *et al*. (2003) *Accessible Natural Green space standards in Towns and Cities: a review and toolkit for their implementation*, English Nature Research Report 526, Peterborough: English Nature (now Natural England). [online] http://naturalengland.etraderstores.com/NaturalEnglandShop/R526 [accessed 17 October 2010].

Handy, S. (2005) Smart growth and transport – land-use connection: What does the research tell us? *International Regional Science Review* **28**:146–67.

Hardin, G. (1968) The tragedy of the commons, *Science* **162**, re-published in G. Hardin (1969) *Population, Evolution and Birth Control*. W H Freeman, San Francisco.

Hardoy, J., Mitlin, D., & Satterthwaite, D. (2001) *Environmental Problems in an Urbanizing World*. Earthscan, London.

Harlaß, R., & Herz, R. (2006) Water balance in urban development – accounting for evapotranspiration. In: *Proc. Int. Conf. on Sustainable Urban Development – Interactive Development of Technical Infrastructure and Vegetation*, 24–25 August 2006 Bergen, Norway.

Harrison, C., & Davies, G. (2002) Conserving biodiversity that matters: practitioners' perspectives on brownfield development and urban nature conservation in London. *Journal of Environmental Management* **65**:95–108.

Hartley, D.J., Koivula, M.J., Spence, J.R., Pelletier, R., & Ball, G.E. (2007) Effects of urbanization on ground beetle assemblages (Coleoptera, Carabidae) of grassland habitats in western Canada. *Ecography* **30**:673–84.

Harvard (2007) *Biodiversity: Its Importance to Human Health*. [online] http://www.med.harvard.edu/chge/resources.html.

Harvey, D. (2005) *A Brief History of Neo-Liberalism*. Oxford University Press, Oxford, UK.

Hassan, R., Scholes, R., & Ash, N. (eds) (2005) *Ecosystems and Human Well-being; Current State and Trends; Findings of the Conditions and Trends Working Group*. Island Press. Washington DC.

Hawley, A.H. (1944) *Ecology and Human Ecology*. *Social Forces* **2**:398–405.

Hayes, T.B., Case, P., Chui, S., Chung, D., Haeffele, C., Haston, K., Lee, M., Mai, V.P., Marjuoa, Y., Parker, J., & Tsui, M. (2006) Pesticide mixtures, endocrine disruption, and amphibian declines: Are we underestimating the impact? *Environmental Health Perspectives* **114**: 40–50.

Hayes, T.B., Collins, A., Lee, M., Mendoza, M., Noriega, N., Stuart, A.A., & Vonk, A. (2002) Hermaphroditic, demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses. *Proceedings of the National Academy of Sciences* **99**:5476–80.

Head, L., Muir, P., & Hampel, E. (2004) Australian backyard gardens and the journey of migration. *Geographical Review,* **94**(3):326–47.

Head, P. (2009) *Entering the Ecological Age: The Engineer's Role* The Institution of Civil Engineers, London.

Heckenberger, M.J., *et al*. (2003) Amazonia 1492: pristine forest or cultural parkland? *Science* **301**:1710–1 4.

Heckmann, K.E., Manley, P.N., & Schlesiner, M.D. (2008) Ecological integrity of remnant montane forests along an urban gradient in the Sierra Nevada. *Forest Ecology and Management* **255**:2453–66.

Heffner, H.E. (1999) The symbiotic nature of animal research. *Perspectives in Biology and Medicine* **43**:128–39.

Heger, T., & Trepl, L. (2003) Predicting biological invasions. *Biological Invasions* **5**:313–21.

Helbig, A., Baumüller J. & Kerschgens M.J. (1999) *Stadtklima und Luftreinhaltung*. 2nd edition. Springer, Berlin.

Helden, A.J., & Leather, S.R. (2004) Biodiversity on urban roundabouts – Hemiptera, management and the species-area relationship. *Basic and Applied Ecology* **5**: 367–77.

Hemenway, T. (2001) *Gaia's Garden: A Guide to Home-Scale Permaculture*. Chelsea Green, White River Junction, Vermont, USA.

Henderson J.V., & Wang, H.G. (2007) Urbanization and city growth: the role of institutions. *Regional Science and Urban Economics* **37**:283–313.

Heneghan, L., Rauschenberg, C., Fatemi, F., & Workman, M. (2004) European buckthorn (*Rhamnus cathartica*) and its effects on some ecosystem properties in an urban woodland. *Ecological Restoration* **22**:275–80.

Heneghan, L., Steffen, J., & Fagen, K. (2007) Interactions of an introduced shrub and introduced earthworms in an Illinois woodland: impact on leaf litter decomposition. *Pedobiologia* **50**:543–51.

Hern, W.M. (2008) Urban malignancy: similarity in the fractal dimensions of urban morphology and malignant neoplasms. *International Journal of Anthropology* **23**: 1–19.

Herr, J., Schley, L., & Roper, T.J. (2008) Fate of translocated wild-caught and captive-reared stone martens (*Martes foina*). *European Journal of Wildlife Research* **54**:51 1–14.

Herrmann, H.L., Babbitt, K.J., Baber, M.J., & Congalton, R.J. (2005) Effects of landscape characteristics on amphibian distribution in a forest-dominated landscape. *Biological Conservation* **123**:139–49.

Hertling, T., & Raschke, N. (1995) Methode zur Bewertung von Schadstoffgehalten in Böden im Rahmen der UVP. *UVP-Report*. **1**(95):14–8.

Hester, R., Blazej, N., & Moore, I. (1999) Whose wild? Resolving cultural and biological diversity conflicts in urban wilderness. *Landscape Journal* **18**(2):137–46.

Hill, R., & Pickering, C. (2009) Differences in resistance of three subtropical vegetation types to experimental trampling. *Journal of Environmental Management*, **90**:1305–12.

Hiller, D.A., & Meuser, M. (1998) *Urbane Böden*. Springer, Berlin.

Hirner, A.V., Rehage, H., & Sulkowski, M. (2000) *Umweltgeochemie: Herkunft, Mobilität und Analyse von Schadstoffen in der Pedosphäre*. Steinkopff-Verlag, Darmstadt.

Hitchmough, J.D. (1994) *Urban Landscape Management*. Inkata Press, Sydney.

Hoare, R.E. (1999) Determinants of human-elephant conflict in a land-use mosaic. *Journal of Applied Ecology* **36**: 689–700.

Hobbs, E.R. (1988) Species richness of urban forest patches and implications for urban landscape diversity. *Landscape Ecology* **1**:141–52.

Hobbs, R.J., & Mooney, H.A. (1998) Broadening the extinction debate: population deletions and additions in California and Western Australia. *Conservation Biology* **12**:271–83.

Holland, K. (1996) Stadtböden im Keuperland am Beispiel Stuttgarts. *Diss. Hohenheimer Bodenk. Hefte, No. 39*. University Hohenheim, Hohenheim.

Holling, C.S. (2001) Understanding the complexity of economic, ecological and social systems. *Ecosystems* **4**: 390–405.

Holway, D.A., & Suarez, A.V. (2006) Homogenization of ant communities in Mediterranean California: the effects of urbanization and invasion. *Biological Conservation* **127**:319–26.

Honari, M., & Boleyn, T. (eds) (1999) *Health Ecology*. Routledge Press, London.

Hope, D., Gries, C., Casagrande, D., Redman, C.L., Grimm, N.B., & Martin, C. (2006) Drivers of spatial variation in plant diversity across the central Arizona-Phoenix system. *Society and Natural Resources* **19**:101–16.

Hope, D., Gries, C., Zhu, W., Fagan, W.F., Redman, C.L., Grimm, N.B., *et al*. (2003) Socioeconomics drive urban plant diversity. *Proceedings of the National Academy of Science* **100**:8788–92.

Horner, R.R., Lim, H., & Burges, S.J. (2002) *Hydrologic Monitoring of the Seattle Ultra-Urban Stormwater Management Projects*. Water Resources Series, Technical Report No. 170, November 2002. Department of Civil and Environmental Engineering, University of Washington, Seattle.

Hough, M. (1984) *City Form and Natural Processes.* Routledge, London.

Howard, L. (1833) *The Climate of London*. Vol. 1, 2, and 3. London. (Reprint by International Association for Urban Climate (IAUC) 2006).

Hu, D., Wang, R., & Tang, T. (1995) An analysis of the flora in Tianjin. In: H. Sukopp, M. Numata, and A. Huber, (eds) *Urban Ecology as the Basis of Urban Planning*,

pp. 59–69. SPB Academic Publishing, Amsterdam, The Netherlands.

Hubbell, S.P. (2005) Neutral theory in community ecology and the hypothesis of functional equivalence. *Functional Ecology* **19**:166–72.

Huinink, J.T.M. (1998) Soil quality requirements for use in urban environments. *Soil And Tillage Research* **47** (1–2): 157–62.

Humpel, N., Owen, N., Leslie, E., Marshall, A.L., Bauman, A.E., & Sallis, J.F. (2004) Associations of location and perceived environmental attributes with walking in neighbourhoods. *American Journal of Health Promotion* **18**:239–42.

Hunter, M.R., & Hunter, M.D. (2008) Designing for conservation of insects in the built environment. *Insect Conservation and Diversity* **1**:189–96.

ICLEI (International Council for Local Environmental Initiatives) (2007) *Local Governments for Sustainability*. ICLEI Global. [online] http://www.iclei.org [accessed 30 March 2009].

IEA. 2008. *World Energy Outlook*. OECD/IEA, Paris.

Ikeda, T., Asano, M., Matoba, Y., & Abe, G. (2004) Present status of invasive alien raccoon and its impact in Japan. *Global Environmental Research* **8**:125–31.

Illgen, M. (2008) Infiltration and surface runoff processes on pavements: physical phenomena and modelling. *Proc. 11th Int. Conf. on Urban Drainage, 31 Aug–5 Sept 2008, Edinburgh, Scotland, UK*. [online] http://www.11icud.org [accessed 23 July 2010].

Illgen, M. (2010) Infiltration processes on paved urban areas and their hydrological quantification (in German: Das Versickerungsverhalten durchlässig befestigter Siedlungsflächen und seine urbanhydrologische Quantifizierung). *Research Publication No. 27*. Institute of Urban Water Management, University of Kaiserslautern, Kaiserslautern.

Illgen, M., Schmitt, T.G., Welker, A., & Harting, K. (2007) Runoff and infiltration characteristics of permeable pavements – review of an intensive monitoring program. Water, *Science & Technology* **56**(10):133–40.

Imam, E., & Yahya, H.S.A. (2002) Management of monkey problem in Aligarh Muslim University campus, Uttar Pradesh. *Zoos' Print Journal* **17**:685–87.

IPCC, 2007: Summary for Policymakers. In: M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson, (eds) *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 7–22. Cambridge University Press, Cambridge, UK.

Irwin, E.G., & Bockstael, N.E. (2007) The evolution of urban sprawl: Evidence of spatial heterogeneity and increasing land fragmentation. *Proceedings of the National Academy of Sciences of the United States of America* **104**: 20672–77.

Iverson, L.R., & Cook, E.A. (2000) Urban forest cover of the Chicago region and its relation to household density and income. *Urban Ecosystems* **4**:105–24.

Jackon, T. (2009) *Prosperity with Growth? The Transition to a Sustainable Economy:* Sustainable Development Commission, London.

Jackson, L.E. (2003) The relationship of urban design to human health and condition. *Landscape and Urban Planning* **64**:191–200.

Jacobs, M. (1994) *The limits to Neo-classicism: Towards an institutional environmental economics*: In: M. Redclift and E. Benton (eds) *Social Theory and the Global Environment*. London, Routledge.

Jäger, K.-D. (1997) Böden und Bodensedimente als historische Quellen. *Archäol. Sachsen-Anhalt* **7**:4–12.

James, P., Tzoulas, K., Adams, M.D., Annett, P., Barber, A., Box, J., Breuste, J., Cooper, I., Curwell, S.R., Elmqvist, T., Flood, T., Frith, M., Gledhill, D.G., Goode, D., Gordon, C., Greening, K.L., Handley, J., Harding, S., Haworth, S., Hesketh, F., Home, R., Johnston, M., Kazmierczak, A.E., Korpela, K., Leeks, G., Morley, E., Nail, S., Niemelä, J., Moretti, M., Stein, N., Pauleit, S., Powell, J.A., Radford, K.G., Richardson, D., Roe, M.H., Sadler, J.P., Selman, P., Scott, A.V., Snep, R., Stern, N., Timmermans, W., & Ward-Thompson, C. (2009) Towards an integrated understanding of green space in the European built environment. *Urban Forestry & Urban Greening* **8**: 65–75.

James, W. (2000) *Applied Modeling of Urban Water Systems*. Monograph 8. CHI (Computational Hydraulics International), Guelph.

James, W.R.C., James, W., & von Langsdorff, H. (2002) Stormwater management model for environmental design of permeable pavement. In: W. James (ed) *Models and Applications to Urban Water Systems*, pp. 423–44. Monograph 9, Ch. 26. CHI (Computational Hydraulics International), Guelph.

Jansson, Å., & Nohrstedt, P. (2001) Carbon sinks and human freshwater dependence in Stockholm County. *Ecological Economics* **39**:361–70.

Janzen, D. (1998) Gardenification of wildland nature and the human footprint. *Science*, **279**:1312–13.

Jeffcote, M.T. (1993) Wildlife conservation and private gardens in the city of Leicester. *Urban Nature Magazine* **1**: 151–54.

Jenkins, I.C., & Riemann, R. (2003) What does nonforest land contribute to the global carbon balance? In: R.E. McRoberts, G.A. Reams, P.C. van Deusen, and J.W. Moser, J.W. (eds), *Proceedings of the Third Annual Forest Inventory*

and Analysis Symposium, pp. 173–79. US Department of Agriculture, Forest Service, St Paul.

Jerozolimski, A., & Peres, C.A. (2003) Bringing home the biggest bacon: a cross-site analysis of the structure of hunter kill profiles in Neotropical forests. *Biological Conservation* **111**:415–25.

Jerzak, L. (2001) Synurbanization of the magpie in the Paleartic. In: J.M. Marzluff, R. Bowman, and R. Donnelly (eds) *Avian Ecology and Conservation in an Urbanizing World*, pp. 403–25. Kluwer Academic Publishers, Boston.

Jim, C., (1993) Trees and landscape of a suburban residential neighbourhood in Hong Kong. *Landscape and Urban Planning* **23**(2):1 19–43.

Jim, C., (2000) Evaluation of ornamental plants resources to urban biodiversity and cultural changing: A case study of residential landscapes in Trabzon city (Turkey). *Building and Environment* **42**(1):218–19.

Jim, C.Y. (2004) Green-space preservation and allocation for sustainable greening of compact cities. *Cities* **21**: 311–29.

Jim, C.Y. (2008) Urban biogeographical analysis of spontaneous tree growth on stone retaining walls, *Physical Geography* **29**:351–73.

Jim, C., & Chen, W. (2000) Pattern and divergence of tree communities in Taipei's main urban green spaces. *Landscape and Urban Planning* **84**(3–4):312–23.

Jim, C.Y., & Chen, W.Y. (2006) Perception and attitude of residents toward urban green spaces in Guangzhou (China). *Environmental Management* **38**:338–49.

Jim, C.Y., & Chen W.Y. (2009) Ecosystem services and valuation of urban forests in China. *Cities*, **26**:187 –94.

Jim, C.Y., & Liu, H.T. (2001) Species diversity of three major urban forest types in Guangzhou City, China. *Forest Ecology and Management* **146**:99–1 14.

Johnson, G.D., & Strickland, M.D. (2003) *Biological Assessment for the Federally Endangered Indiana bat (Myotis sodalis) and Virginia Big-eared Bat (Corynorhinus townsendii virginianus)*. Western Ecosystems Technology, Inc. Cheyenne, WY.

Johnson, G.D., Erickson, W.P., Strickland, M.D., Shepherd, M.F., Shepherd, D.A., and Sarappo. S.A. (2003) Mortality of bats at a large-scale wind power development at Buffalo Ridge, Minnesota. The American Midland Naturalist **150**(2): 332–342.

Johnson, G.D., Perlik, M.K., Erickson, W.P., and Strickland. M.D. (2004) Bat activity, composition, and collision mortality at a large wind plant in Minnesota. Wildlife Society Bulletin **32**(4): 1278–1288.

Jongman, R. (2004) Landscape linkages and biodiversity in European Landscapes. In: R. Jongman (ed) R.J. Bongers (Series ed) *The New Dimensions of the European Landscape*. Springer Verlag, Wageningen; Dordrecht.

Jorgensen, A., Hitchmough, J., & Dunnett N. (2007) Woodland as a setting for housing-appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK. *Landscape and Urban Planning* **79**:273–87.

Jorgensen, B.S., & Stedman, R.C. (2001) Sense of place as an attitude: lakeshore owners' attitudes towards their properties. *Journal of Environmental Psychology* **21**: 233–48.

Jorgensen, B.S., & Stedman, R.C. (2006) A comparative analysis of predictors of sense of place dimensions: attachment to, dependence on, and identification with lakeshore properties. *Journal of Environmental Management* **79**:316–27.

Kadas, G. (2006) Rare invertebrates colonizing green roofs in London. *Urban Habitats* **4**:66–86.

Kaika, M. (2005) *City of Flows: Modernity, Nature, and the City*. Routledge, New York.

Kalnay, E., & Cai, M. (2003) Impact of urbanization and land-use change on climate. *Nature* **423**:528–31.

Kambites, C., & Owen, S. (2006) Renewed prospects for green infrastructure planning in the UK. *Planning Practice & Research* **21**(4):483–96.

Kansanen, P. (2004) The role of scientific environmental knowledge in decision-making in the City of Helsinki, Finland. *Boreal Environment Research* **9**:543–9.

Kanth, V.R., & Diwan, P.V. (1999) Analgesic, anti-inflammatory and hypoglycaemic activities of *Sida cordifolia. Phytotherapy Research* **13**(1): 75–77.

Kaplan, R., & Kaplan, S. (1989) *The Experience of Nature: A Psychological Perspective.* Cambridge University Press, Cambridge.

Kaplan, R., Ryan, R.L., & Kaplan, S. (1989) *With People in Mind: Design and Management of Everyday Nature*. Island Press, Covelo CA.

Karraker, N.E. (2008) Impacts of road deicing salts on amphibians and their habitats. In: J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds), *Urban Herpetology*, pp. 211–23. Herpetological Conservation Vol. 3, Society for the Study of Amphibians and Reptiles, Salt Lake City, UT.

Karschon, R., & Weinstein, A. (1985) Wall flora and vegetation at Qal' at Nimrud, the castle of Banyas. *Israel Journal of Botany* **34**:59–64.

Kasanko, M., Barredo, J.I., Lavalle, C., McCormick, N., Demicheli, L., Sagris, V., & Brezger, A. (2006) Are European cities becoming dispersed? A comparative analysis of 15 European urban areas. *Landscape and Urban Planning* **77**:1 11–30.

Kato, S., & Ahern, J. (2008) Learning by doing: adaptive planning as a strategy to address uncertainty in planning. *Environment and Planning* **51**(4):543–59.

Katz, B. (2002) *Smart Growth: The Future of the American Metropolis*. Centre for Analysis of Social Exclusion, London School of Economics, London.

Kay, C.E. (2007) Were native people keystone predators? A continuous-time analysis of wildlife observations made by Lewis and Clark in 1804–1806. *The Canadian Field-Naturalist* **121**:1–16.

Kaye, J.P., Groffman, P.M., Grimm, N.B., Baker L.A., &. Pouyat R.V. (2006) A Distinct Urban Biogeochemistry? *Trends in Ecology and Evolution* **21**:192–9.

Kayes, R., Jacobs, N., & Tyldesley, D. (1993) *Environmental Compensation: An Exploration of Issues*. Report prepared for the Countryside Commission, Critical Environmental Review. Countryside Commission, Oxford.

Kayhanian, M., Stransky, C., Bay, S., Lau, S.L., & Stenstrom, M.K. (2008) Toxicity of urban highway runoff with respect to storm duration. *Science of the Total Environment* **389**:386–406.

Kazemi, F., Beachman, S., & Gibbs, J. (In press). Streetscale bioretention basins in Melbourne and their effect on local biodiversity. *Ecological Engineering*.

Kazmierczak, A.E., & James, P. (2008) Planning for biodiversity conservation in large urban areas: the Ecological Framework for Greater Manchester. *Salzburger Geographische Arbeiten* **42**:129–49.

Keeley, B.W., & Tuttle, M.D. (1999) *Bats in American Bridges*. Bat Conservation International, Inc. Austin, Texas.

Keeling, C.D. (1998) Rewards and penalties of monitoring the earth. *Annual Review of Energy and the Environment* **23**: 25–82.

Kelsey-Wood, D., & Barthel, T. (2006) *Garden Ponds Made Easy.* BowTie Press, Irvine.

Kendle, T., & Forbes, S. (1997) *Urban Nature Conservation*. E & FN Spon, London.

Kendle, A., & Rose, J. (2000) The aliens have landed! What are the justifications for 'native only' policies in landscaping plantings? *Landscape and Urban Planning* **47**(1–2):19–31.

Kent, D.H. (1961) The flora of Middlesex walls, *London Nat., London* **40**:29–43.

Kent, M., Stevens, R.A., & Zhang, L. (1999) Urban plant ecology patterns and processes: a case study of the flora of the City of Plymouth, Devon, U.K. *Journal of Biogeography* **26**:1281–98.

Kenworthy, J., & Laube, F. (1999) Patterns of automobile dependence in cities: an international overview of key physical and economic dimensions with some implications for urban policy. *Transportation Research Part A-Policy and Practice* **33**:691–723.

Kiene, A., & Miehlich, G. (1997) Bodenbewertung im Rahmen einer Umweltverträglichkeitsuntersuchung. *Mitt. Dt. Bodenk. Ges*. **85**:1 187–90.

Kim, J., & Kaplan, R. (2004) Physical and psychological factors in sense of community. New urbanist Kentlands and nearby Orchard Village. *Environment and Behaviour* **36**:313–40.

Kimmerer, R.W. (2003) *Gathering Moss: A Natural and Cultural History of Mosses,* Corvallis, Oregon State University Press.

Kinzig, A., Pacala, S., & Tilman, D. (2001) *The Functional Consequences of Biodiversity*. Princeton University Press, New Jersey, USA.

Kinzig, A.P., Warren, P., Martin, C., Hope, D., & Katti, M. (2005) The effects of human socioeconomic status and cultural characteristics on urban patterns of biodiversity. *Ecology and Society* **10**:23.

Kipkie, C.W., & James, W. (2000) Feasibility of a permeable pavement option in SWMM for long-term continuous modelling. In: W. James (ed) *Applied Modeling of Urban Water Systems,* pp. 303–24. Monograph 8, Ch. 17. CHI (Computational Hydraulics International), Guelph.

Kirch, P.V., Flenley J.R., Steadman D., Lamont F., & Dawson S. (1992) Ancient environmental degradation. *National Geographic Research and Exploration* **8**(2): 166–79.

Kirkpatrick, J.B., Daniels, G.D., & Zagorski, T. (2007) Explaining variation in front gardens between suburbs of Hobart, Tasmania, Australia. *Landscape and Urban Planning* **79**:314–22.

Klausnitzer, H. (1998) Fauna. In: H. Sukopp and R. Wittig (eds) *Stadtökologie. Ein Fachbuch für Studium und Praxis*. Fischer, Stuttgart.

Klem, Jr. D. (1989) Bird-window collisions. *Wilson Bulletin* **101**:606–20.

Klironomos, J.N. (2002) Feedback with soil biota contributes to plant rarity and invasiveness in communities. *Nature* **417**:67–70.

Knapp, S., Kuhn, I., Schweiger, O., & Klotz, S. (2008a) Challenging urban species diversity: contrasting phylogenetic patterns across plant functional groups in Germany. *Ecology Letters* **11**(10):1054–64.

Knapp, S., Kuhn, I., Mosbrugger, V., & Klotz, S. (2008b) Do protected areas in urban and rural landscapes differ in species diversity? *Biodiversity and Conservation* **17**(7): 1595–612.

Knickerbocker, C.M., Leitholf, S., Stephens, E.L., Keellings, D.J., Laird, H., Anderson, C.J. R., *et al*. (2009) Tree encroachment of a sawgrass (*Cladlum jamaicense*) marsh within an increasingly urbanized ecosystem. *Natural Areas Journal,* **29**(1):15–26.

Knight, R.L. (1984) Responses of nesting ravens to people in areas of different human densities. *Condor* **86**: 345–46.

Knight, R.L., Grout, D.J., & Temple, S.A. (1987) Nest-defense behavior of the American crow in urban and rural areas. *Condor* **89**:175–77.

Koch, S., Bukowski, F., Sauerwein, M., & Frühauf, M. (2004) Der Einfluss von Stadtstrukturtypen auf die Grundwasserbeschaffenheit der Stadt Halle (Saale). *Wasser & Abfall* **5**: 20–4.

Koch, S., Sauerwein, M., & Frühauf, M. (2004) *Urbane Böden als Belastungsquellen von Nähr- und Schadstoffen für aquatische Systeme (Fließgewässer, Standgewässer, Grundwasser) – dargestellt am Beispiel der Stadt Halle. Abschlussbericht*. Auftraggeber: UFZ-Umweltforschungszentrum Leipzig-Halle. Unveröff.

Köhler, M. (2006) Long-term vegetation research on two extensive green roofs in Berlin, *Urban Habitats* **4**:3–26.

Köhler, M. (2008) Green facades—a view back and some visions. *Urban Ecosystems* **11**:423–36.

Koivula, M., Kotze, D.J., & Salokannel, J. (2005) Beetles (Coleoptera) in central reservations of three city highway roads around the city of Helsinki, Finland. *Annales Zoologici Fennici* **42**:615–26.

Kondrat, M.E. (2002) Actor-centered social work: re-visioning 'person-in-environment' through a critical theory lense. *Social Work* **47**:435–48.

Konig, A. (2008) Fears, attitudes and opinions of suburban residents with regards to their urban foxes. *European Journal of Wildlife Research* **54**:101–109.

Koppe, C., & Jendritzky, G. (2005) Inclusion of short-term adaptation to thermal stresses in a heat load warning procedure. *Meteorologische Zeitschrift* 14(2): 271–8.

Korpela, K.M. (2003) Negative mood and adult place preference. *Environment and Behaviour* **35**:331–46.

Korpela, K., & Ylén, M. (2006) Perceived health is associated with visiting natural favourite places in the vicinity. *Health & Place* **13**(1):138–151.

Korpela, K.M., Hartig, T., Kaiser, F., & Fuhrer, U. (2001) Restorative experience and self-regulation in favourite places. *Environment and Behaviour* **33**:572–89.

Kostel-Hughes, F., Young, T.P., & McDonnell, M.J. (1998) The soil seed bank and its relationship to the above-ground vegetation in deciduous forests in New York City. *Urban Ecosystems* **2**:43–59.

Kotulski, Y., & König, A. (2008) Conflicts, crises and challenges: wild boar in the Berlin City – a social empirical and statistical survey. *Nat. Croat*. **17**(4):233–46.

Kotze, D.J., & O'Hara, R.B. (2003) Species decline – but why? Explanations of carabid beetle (Coleoptera, Carabidae) declines in Europe. *Oecologia* **135**:138–48.

Kowarik, I. (1992) Das Besondere der städtischen Flora und Vegetation., *Schriftenreihe des Deutschen Rates für Landespflege* **61**:33–47.

Kowarik, I. (1995) On the role of alien species in urban flora and vegetation. In: P. Pyšek, K. Prach, M. Rejmanek and M. Wade (eds) *Plant Invasions – General Aspects and Special Problems*, pp. 85–103. SPB Academic Publishing, Amsterdam.

Kowarik, I. (1995) On the role of alien species in urban flora and vegetation. In P Pysek, K. Prach, M. Rejmanek, and M. Wade (eds) *Plant Invasions-General Aspects and Special Problems* pp. 85–103. SPB Academic Publishing, Amsterdam.

Koziell, I., & Saunders, J. (2001) *Living Off Biodiversity: Exploring Livelihoods and Biodiversity Issues in Natural Resources Management*. International Institute for Environment and Development, London.

Krebs, C.J. (2001) *Ecology: The Experimental Analysis of Distribution and Abundance.* Benjamin Cummings, San Francisco.

Kremen, C., Williams, N.M., Aizen, M.A., Gemmill-Herren, B., LeBuhn, G., Minckley, R., Packer, L., Potts, S.G., Roulston, T., Steffan-Dewenter, I., Vazquez, D.P., Winfree, R., Adams, L., Crone, E.E., Greenleaf, S.S., Keitt, T.H., Klein, A.M., Regetz, J., and Ricketts, T.H. (2007) Pollination and other ecosystem services produced by mobile organisms: a conceptual framework for the effects of land-use change. *Ecology Letters* **10**(4): 299–314.

Krigas, N., Lagiou, E., Hanlidou, E., & Kokkini, S. (1999) The vascular flora of the Byzantine Walls of Thessaloniki (N Greece). *Willdenowia* **29**:77–94.

Kubler, S., Kupko, S., & Zeller, U. (2005) The kestrel (*Falco tinnunculus)* in Berlin: investigation of breeding biology and feeding ecology. *Journal of Ornithology* **146**:271–78.

Kühn, I., & Klotz, S. (2006) Urbanization and homogenization – comparing the floras of urban and rural areas in Germany. *Biological Conservation* **127**:292–300.

Kühn, I., Brandl, R., & Klotz, S. (2004) The flora of German cities is naturally species rich. *Evolutionary Ecology Research* **6**:749–64.

Kulkarni, M., Dighe, S., Sawant, A. Oswal, P., Sahsrabuddhe, K., & Patwardhan, A. (2004) Institution: Biodiversity Hotspots in Urban Areas. Research and Action in Natural Wealth Administration (RANWA), Pune,I ndia. http://www.ranwa.org/pu.htm

Kunst, S., Kruse, T., & Burmester, A. (eds) (2002) *Sustainable Water and Soil Management*. Springer, Berlin.

Kuntze, H., Roeschmann, G., & Schwerdtfeger, G. (1994) *Bodenkunde*. UTB, Stuttgart.

Kuo, F.E. (2003) The role of arboriculture in a healthy social ecology. *Journal of Arboriculture* **29**(3):148–55.

Kuttler, W. (Ed.) (1995) Handbuch zur Ökologie. Berlin: Analytica Verlag.

Kuttler, W., & Weber, S. (2006) Angewandte Stadtklima forschung in deutschen Großstädten - Aktuelle Beispiele aus Essen und Osnabrück. Geogr. *Rundschau* **58**(7/8): 42–50.

La Sorte, F.A., McKinney, M.L., Pyšek, P., Klotz, S., Rapson, G.L., Celesti-Grapwo, L., & Thompson, K. (2008) Distance decay of similarity among European urban

floras: the impact of anthropogenic activities on diversity. *Global Ecology and Biogeography* **17**:363– 71.

La Sorte, F.A., McKinney, M.L., & Pyšek, P. (2007) Compositional similarity among urban floras within and across continents: biogeographical consequences of human-mediated biotic interchange. *Global Change Biology* **13**:913–21.

Laland, K.N., Odlilng-Smee, J., & Feldman, M.W. (2000) Niche construction, biological evolution, and cultural change. *Behavioral and Brain Sciences*, **23**: 131–75.

LaNier, R. (1975) Developing an Ecological Framework for the Planning of Human Settlements. *Urban Ecology* **1**: 1–4.

Láníková, D., & Lodosová, E. (2009) Rocks and walls: natural *versus* secondary habitats, *Folia Geobotanica* **44**: 263–80.

Larson, D.W., Matthes, U., & Kelly, P.E. (2000) *Cliff Ecology,* Cambridge University Press, Cambridge.

Larson, D.W., Matthes, U., Kelly, P.E., Lundholm, J., & Gerrath, J. (2004). *The Urban Cliff Revolution*. Fitzhenry & Whiteside, Markham, Ontario.

Larson, J., Kreitzer, M.J. (n.d.) Healing by design: healing gardens and therapeutic landscapes. *InfomeDesign® Implications* **2**(10).

Laurance, W.F. (2008) Theory meets reality: How habitat fragmentation research has transcended island biogeographic theory. *Biological Conservation* **141**:1731–44.

Lawson, D., Lamar C., & Schwartz, M. (2008) Quantifying plant population persistence in human-dominated landscapes. *Conservation Biology* **22**(4): 922–28.

Le Viol, I., Mocq, J., Julliard, R., & Kerbiriou, C. (2009) The contribution of motorway stormwater retention ponds to the biodiversity of aquatic macroinvertebrates. *Biological Conservation* **142**:3163–3171.

Lebensmisisterium (2004) *Urban Design for Sustainability, Final Report of the Working Group*. Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, Vienna.

Lee, J., Park, B.-J., Tsunetsugu, Y., Takahide, K., & Miyazaki, Y. (2009) Restorative effects of viewing real forest landscapes, based on a comparison with urban landscapes. *Scandinavian Journal of Forest Research* **24**(3): 227–34.

Lee, K.N. (2006) Urban sustainability and the limits of classical environmentalism. *Environment & Urbanization* **18**(1):9–22.

Lee, K.N. (2007) An urbanizing world. In: L. Stark (ed) *State of the World 2007: Our Urban Future.* World Watch Institute, Washington DC.

Lee, S., & Webster, C. (2006) Enclosure of the urban commons. *GeoJournal* **66**:27–42.

Lee, S.W., Ellis, C.D., Kweonb, B.S., & Hong, S.K. (2008) Relationship between landscape structure and neighbourhood satisfaction in urbanized areas. *Landscape and Urban Planning* **85**:60–70.

Lefebvre, L. (1986) Cultural diffusion of a novel food-finding behaviour in urban pigeons: an experimental field test. *Ethology* **71**:295–304.

Lefebvre, L. (1995) The opening of milk bottles by birds: evidence for accelerating learning rates, but against the wave-of-advance model of cultural transmission. *Behavioural Processes* **34**:43–54.

Lehmann, A. (2002) Tiefhumose Böden und verdichtete Böden im urbanen Raum. *Mitt. Dt. Bodenk. Ges*. **99**: 17–8.

Lehvävirta, S., & Kotze, D. (2009) How to conduct comparative urban ecological research. In: M.J. McDonnell, A.K. Hahs, and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach*. pp. 530–48. Cambridge University Press. Cambridge, UK.

Lehvävirta, S., & Rita, H. (2002) Natural regeneration of trees in urban woodlands. *Journal of Vegetation Science* **13**:57–66.

Leibold, M.A., Holyoak, M.N., Mouquet, Amarasekare, P., Chase, J.M., Hoopes, M.F., Holt, R.D., Shurin, J.B., Law, R., Tilman, D., Loreau, M., & Gonzalez, A. (2004) The metacommunity concept: a framework for multi-scale community ecology. *Ecology Letters* **7**: 601–13.

Lepczyk, C.A., Flather, C.H., Radeloff, V.C., Pidgeon, A.M., Hammer, R.B. & Liu, J. (2008) Human impacts on regional avian diversity and abundance. *Conservation Biology* **22**:405–16.

Lepczyk, C.A., Mertig, A.G., & Liu, J. (2004) Assessing landowner activities related to birds across rural-to-urban landscapes. *Environmental Management* **33**: 110–25.

Lepczyk, C.A., Warren, P.S., Machabée, L.A.P., Kinzig, A.P., & Mertig, A. (In press) Who feeds the birds? A comparison between Phoenix, Arizona and southeastern Michigan. *Studies in Avian Biology*.

Leser, H. (2008) *Stadtökologie in Stichworten*. Bornträger, Berlin.

Levin, S.A. (1998) Ecosystems and the bioshpere as complex adaptive systems. *Ecosystems* **1**:431–36.

Li, L. (2008) *Status and Prospects for Urban Green Structure Planning in China – Weihai City as a Case Study*. Forest and Landscape Research Series. Forest & Landscape, Frederiksberg, Denmark.

Likens, G.E. (1992) The Ecosystem Approach: Its Use and Abuse. In: Kinne O. (ed) Excellence in ecology. Book 3. International Ecology Institute, Oldendorf/ Luhe.

Linde, M., Bengtsson, H., & Öborn, I. (2001) Concentrations and pools of heavy metals in urban soils in Stockholm, Sweden. *Water, Air and Soil Pollution* **1**(3):83–101.

Lindenmayer, D.B., & Fischer, J. (2006) Tackling the habitat fragmentation panchreston. *TRENDS in Ecology and Evolution* **22**:127–32.

Lisci, M. (1997) The vascular flora of the walls of some towns in south-central Tuscany. *Webbia* **52**:43– 66.

Lisci, M., Monte, M., & Pacini, E. (2003) Lichens and higher plants on stone: a review. *International Biodeterioration & Biodegradation* **51**:1–17.

Lisci, M., & Pacini, E. (1993) Plants growing on the walls of Italian towns. 1. Sites and distribution. *Phyton* **33**: 15–26.

Lister, N.M. (2007) Sustainable large parks: ecological design or designer ecology? In: J. Czerniak and G. Hargraeves (eds). *Large Parks*, pp. 35–57. Princeton Architectural Press, New York.

Litman, T. (2009) Evaluating criticism of smart growth. Victoria Transport Policy Institute, Victoria, BC, Canada. [online] www.vtpi.org.

Liu, J., An, L., Batie S.S., Bearer S.L., Chen X., Gropp R.E., He, G., Liang Z., Linderman, M.A., Mertig A.G., Ouyant, Z., Qi J., & Zhan, H.Z.S. (2005) Beyond population size: examining intricate interactions among population structure, land-use, and environment in Wolong Nature Reserve, China. In C. National Research, *Population, Land-use, and Environment*, pp. 217–37. National Academies Press, Washington, DC.

Liu, J., Dietz, T., Carpenter, S.R., *et al*. (2007a) Complexity of coupled human and natural systems. *Science* **317**: 1513–16.

Liu, J., Dietz, T., Carpenter, S.R., *et al*. (2007b) Coupled human and natural systems. *Ambio*, **36**:639–49 .

Logan, J.R., & H. Molotch. (1987) Urban fortunes: the political economy of place. Univ. California Press, Berkeley.

Lopez, R.D., & Fennessy, M.S. (2002) Testing the floristic quality assessment index as an indicator of wetland condition. *Ecological Applications* **12**(2):487–97.

Loram, A., Thompson, K., Warren, P.H., & Gaston, K.J. (2008) Urban domestic gardens (XII): the richness and composition of the flora in five UK cities. *Journal of Vegetation Science* **19**:321–30.

Loram, A., Tratalos, J., Warren, P.H., & Gaston, K.J. (2007) Urban domestic gardens (X): the extent and structure of the resource in five major cities. *Landscape Ecology* **22**: 601–15.

Loram, A., Warren, P., & Gaston, K.J. (2008) Urban domestic gardens (XIV): The characteristics of gardens in five cities. *Environmental Management* **42**(3):361–76 .

Lounibos, L.P., Suárez, S., Menéndez, Z, Nishimura, N, Escher, R.L., O'Connell, S.M., & Rey, J.R. (2002) Does temperature affect the outcome of larval competition between *Aedes aegypti* and *Aedes albopictus*? *Journal of Vector Ecology* **27**:86–95.

Louv, R. (2008) *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*. Algonquin Books, Chapel Hill, NC.

Lovasi, G.S., Quinn, J.W., Neckerman, K.M., Perzanowski, M.S., & Rundle, A. (2008) Children living in areas with more street trees have lower prevalence of asthma. *Journal of Epidemiology and Community Health* **62**: 647–49.

Lovell, S.T., & Johnston, D.M. (2009) Creating multifunctional landscapes: how can the field of ecology inform the design of the landscape? *Frontiers in Ecology and the Environment* **7**:212–20.

Low, B., Costanza, R., Ostrom, E., & Wilson, J. (2000) Human-ecosystem interactions: a dynamic integrated model. *Ecological Economics* **31**:227–42.

Lowenthal, D. (1990) Awareness of human impacts: changing attitudes and emphases. In B.L. Turner, W.C. Clark, R.W. Kates, J.F. Richards, J.T. Matthews and W.B. Meyers (eds) *The Earth as Transformed by Human Action.* Cambridge University Press, New York.

Lu, P., Yu, Q., Liu, J., & Lee, X. (2006) Advance of tree-flowering dates in response to urban climate change. *Agricultural and Forest Meteorology* **138**:120–31.

Lubchenco, J., Olson, A.M., Brubaker, L.B., Carpenter, S.R., Holland, M.M., Hubbell, S.P., Levin, S.A., MacMahon, J.A., Matson, P.A., Melillo, J.M., Mooney, H.A., Peterson, C.H., Pulliam, H.R., Real, L.A., Regal, P.J., & Risser, P.G. (1991) The Sustainable Biosphere Initiative: an ecological research agenda. *Ecology* **72**:371–412.

Luck, G.W. (2007) A Review of the Relationships between Human Population Density and Biodiversity. *Biological Reviews* **82**:607–45.

Lukasik, V.M., & Alexander, S.M. (2008) Coyote diet and conflict in urban parks in Calgary, Alberta. Contributed paper for the Canadian Parks for Tomorrow: 40th Anniversary Conference, May 8 to 11, 2008. University of Calgary, Calgary, AB.

Lundholm, J.T. (2006) Green roofs and facades: a habitat template approach *Urban Habitats* **4**:87–101.

Lundholm, J.T., & Marlin, A. (2006) Habitat origins and microhabitat preferences of urban plant species, *Urban Ecosystems* **9**:139–59.

Luo, Z., Sun, O.J., Ge, Q., Xu, W., & Zheng, J. (2007) Phenological responses of plants to climate change in an urban environment. *Ecological Restoration* **22**:507–14.

Luttik, J. (2000) The value of trees, water and open space as reflected by house prices in the Netherlands. *Landscape and Urban Planning* **48**:161–67.

Lynch, K. (1985) *Good City Form*. MIT Press, Cambridge, MA.

MA (Millennium Ecosystem Assessment), (2003). *Ecosystems and Human Well-Being; A Framework for Assessment.* Island Press, Washington, DC.

MA (Millenium Ecosystem Assessment) (2005a) *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.

MA (Millennium Ecosystem Assessment) (2005b) Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Wetlands and Water Synthesis.* World Resources Institute. Washington, DC.

MA (Millennium Ecosystem Assessment) (2005c) *Ecosystems and Human Well-being: Our Human Planet*. Island Press, Washington, DC.

Maas, J., Verheij1, R.A., Spreeuwenberg, P., & Groenewegen, P.P. (2008) Physical activity as a possible mechanism behind the relationship between green space and health: A multilevel analysis. *BMC Public Health* 2008, **8**: 206. [doi:10.1186/1471–2458–8–206].

MacArthur, R.H., & Wilson, E.O. (1967) *The Theory of Island Biogeography*. Princeton University Press, Princeton.

MacFarlane, D.W., & Meyer, S.P. (2005) Characteristics and distribution of potential ash tree hosts for emerald ash borer. *Forest Ecology and Management* **213**:15 –24.

Machlis, G.E., Force, J.E., & Burch, W.R. Jr. (1997) The human ecosystem part I: the human ecosystem as an organizing concept in ecosystem management. *Society of Natural Resources* **10**:347–67.

Madrid, L., Diaz-Barrientos, E., Reinoso, R., & Madrid, F. (2004) Metals in urban soils of Sevilla: seasonal changes and relations with other soil components and plant contents. *European Journal of Soil Science* **55**(55): 209–17.

Mage, D., Ozolins, G., Peterson, P., Webster, A., Orthofer, R., Vandeveerd, V., & Gwynne, M. (1996) Urban air pollution in megacities of the world. *Atmospheric Environment* **30**,681–6.

Magee, T.K., Ernst, T.L., Kentula, M.E., & Dwire, K.A. (1999) Floristic comparison of freshwater wetlands in an urbanizing environment. *Wetlands* **19**(3):517–34.

Magurran, A. (2004) *Measuring Biological Diversity*. Blackwell, Malden, MA.

Mahmoud, K.F., Alfaro, S.C., Favez, O., Abdel Wahab, M.M., & Sciare, J. (2008) Origin of black carbon concentration peaks in Cairo (Egypt). *Atmospheric Research* **89** (1–2): 161–9.

Maller, C., Townsend, M., Henderson-Wilson, C., Pryor, A., Prosser, L., & Moore, M. (2008) *Healthy Parks, Healthy People: The Health Benefits of Contact with Nature in a Park Context. A Review of Relevant Literature.* 2nd edn. Deakin University and Parks Victoria, Melbourne. [online] http://www.parkweb.vic.gov.au/1process_content.cfm?section=99&page=16 [accessed 17 October 2010].

Maller, C., Townsend, M., Pryor, A., Brown, P., & St Leger, L. (2005) Healthy nature healthy people: 'contact with nature' as an upstream health promotion intervention for populations. *Health Promotion International* **21**: 45–54.

Manfredo, M.J., Vaske, J.J., & Teel, T.L. (2003) The potential for conflict index: a graphic approach to pratical significance of human dimensions research. *Human Dimensions of Wildlife* **8**:219–28.

Manfredo, M.J., Vaske, J.J., Brown, P.J., Decker, D.J., & Duke, E.A. (2008) *Wildlife and Society: The Science of Human Dimensions*. Island Press, Washington, DC.

Mann, C. (2002) The real dirt on rainforest fertility. *Science* **297**:920–23.

Mansell, M.G. (2003) *Rural and Urban Hydrology*. Thomas Telford Ltd, London.

Marco, A., Dutoit, T., Deschamps-Cottin, M., Mauffrey, J., Vennetier, M., & Bertaudiere-Montes, V. (2008) Gardens in urbanizing rural areas reveal and unexpected floral diversity related to housing density. *Comptes Rendus Biologies* **331**(6):452–65.

Marcotullio, P.J. (2007) Variations of urban environmental transitions: The experiences of rapidly developing Asia-Pacific cities. In: P.J. Marcotullio and G. McGranahan (eds) *Scaling Urban Environmental Challenges, From Local to Global and Back*, pp. 45–68. Earthscan, London.

Marcotullio, P.J., & Y.-s. F. Lee. (2003) Urban environmental transitions and urban transportation systems: a comparison of North American and Asian experiences. *International Development Planning Review* **25**(4): 325–54.

Marks, C.A., & Bloomfield, T.E. (1999) Distribution and density estimates for urban foxes (*Vulpes vulpes*) in Melbourne: implications for rabies control. *Wildlife Research* **26**:763–75.

Marks, P.L. (1983) On the origin of the field plants of the northeastern United States, *The American Naturalist* **122**: 210–28.

Marris, E. (2007) A garden for all climates. *Nature* **450**: 937–39.

Marsalek, J., Jiménez-Cisneros, B., Karamouz, M., Malmquist, P.-A., Goldenfum, J., & B. Chocat. (2007) *Urban Water Cycle Processes and Interactions*. Urban Water Series. UNESCO-IHP, Paris.

Marsh, G.P. (1864) *Man and Nature; or, Physical Geography as Modified by Human Action.* Reprinted 1965. Belknap Press of Harvard University Press, Cambridge.

Martin, C.A., Warren, P.S., & Kinzig, A.P. (2004) Neighborhood socioeconomic status is a useful predictor of perennial landscape vegetation in small parks and surrounding residential neighborhoods in Phoenix, Arizona. *Landscape and Urban Planning* **69**:355–68.

Marzluff, J.M. (2001) Worldwide urbanization and its effects on birds. In: J.M. Marzluff, R. Bowman and R. Donnelley, (eds) *Avian Ecology in an Urbanizaing World*, pp. 19–47. Kluwer, Norwell, Massachusetts.

Marzluff, J.M. (2005) Island biogeography for an urbanizing world: how extinction and colonization may determine biological diversity in human-dominated landscapes. *Urban Ecosystems* **8**:155–75.

Marzluff, J.M. (In press) Urban evolutionary ecology. *Studies in Avian Biology*.

Marzluff, J.M., & Angell, T. (2005a) *In the Company of Crows and Ravens*. Yale University Press, New Haven, CT.

Marzluff, J.M., & Angell, T. (2005b) Cultural coevolution: how the human bond with crows and ravens extends theory and raises new questions. *Journal of Ecological Anthropology* **9**:67–73.

Marzluff, J.M., Boone, R.B., & Cox, G.W. (1994) Historical changes in populations and perceptions of native pest bird species in the West. *Studies in Avian Biology* **15**: 202–20.

Marzluff, J.M., Bowman, R., & Donnelly, R. (2001) *Avian Ecology and Conservation in an Urbanizing World*. Kluwer Academic Publishers, Norwell, Massachusetts.

Marzluff, J.M., Schulenberger, E., Endlicher, W., Simon, U., ZumBrunnen, C., Alberti, M., Bradley, G., & Ryan, C. (2008a) An introduction to urban ecology as an interaction between humans and nature. In: J.M. Marzluff, E. Schulenberger, W. Endlicher, M. Alberti, G. Bradley, C. Ryan, U. Simon and C. ZumBrunnen (eds) *Urban Ecology. An International Perspective on the Interaction Between Humans and Nature*, pp. vii–xi. Springer-Verlag, New York.

Marzluff, J., Shulenberger, E., Endlicher, W., Alberti, M., Bradley, G., Ryan, C., ZumBrunnen, C., & Simon U. (eds) (2008b) *Urban Ecology: An International Perspective on the Interaction Between Humans and Nature.* Springer-Verlag, New York.

Marzluff, J.M., Walls, J., Cornell, H.N., Withey, J.C., & Craig, D.P. (2010) Lasting recognition of threatening people by wild American crows. *Animal Behaviour* **79**: 699–707.

Maskell, L.C., Bullock, J.M., Smart, S.M., Thompson, K., & Hulme, P.E. (2006) The distribution and habitat associations of non-native plant species in urban riparian habitats. *Journal of Vegetation Science* **17**:499–508.

Matteson, K.C., Ascher, J.S., & Langellotto, G.A. (2008) Bee richness and abundance in New York city urban gardens. *Annals of the Entomological Society of America* **101**: 140–50.

Matthews, J.W., Tessene, P.A.W., Wisebrook, S.M. & Zercher, B.W. (2005) Effect of area and isolation on species richness and indices of floristic quality in Illinois, USA wetlands. *Wetlands* **25**(3):607–15.

Mayen, F. (2003) Haematophagous bats in Brazil, their role in rabies transmission, impact on public health, livestock industry and alternative to an indiscriminate reduction of bat population. *Journal of Veterinary Medicine* **50**:469–72.

Mayer, H. (1999) Air pollution in cities. *Atmospheric Environment* **33**:4029–37.

Mayor of London (2002) *Connecting with London's Nature: The Mayor's Biodiversity Strategy*. Greater London Authority, London.

McCabe, D.J., & Gotelli, N.J. (2000) Effects of disturbance frequency, intensity, and area on assemblages of stream macroinvertebrates. *Oecologia* **124**:270–79.

McCarthy, M.A. (2007) *Bayesian Methods for Ecology*. Cambridge University Press, Cambridge.

McDaniel, P. (2009) *The Twelve Soil Orders. Soil Taxonomy*. [online] http://soils.ag.uidaho.edu/soilorders/ [accessed 15 August 2010].

McDaniel, J., & Alley, K.D. (2005) Connecting local environmental knowledge and land-use practices: A human ecosystem approach to urbanization in West Georgia. *Urban Ecosystems* **8**:23–38.

McDonald, R.I. (2008) Global urbanization: Can ecologists identify a sustainable way forward? *Frontiers in Ecology and the Environment* **6**(2):99–104.

McDonald, R.I. (2009) Ecosystem service demand and supply along the urban-to-rural gradient. *Journal of Conservation Planning* **5**:1–14.

McDonald, R.I., Kareiva, P. & Forman, R. (2008) The implications of urban growth for global protected areas and biodiversity conservation. *Biological Conservation* **141**: 1695–703.

McDonnell, M.J., & Hahs A.K. (2008) The Use of Gradient analysis Studies in Advancing our Understanding of the Ecology of Urbanising Landscapes: Current Status and Future Directions. *Landscape Ecology* **23**: 1143–55.

McDonnell, M.J., & Hahs, A.K. (2009) Comparative Ecology of Cities and Towns: Past, Present and Future. In: M.J. McDonnell, A.K. Hahs and J.H. Breuste (eds) *Ecology of Cities and Towns: A comparative approach.* Cambridge University Press, Cambridge.

McDonnell, M., Breuste, J., & Hahs, A. (2009) Introduction: scope of the book and need for developing a comparative approach to the ecological study of cities and towns. In: M.J. McDonnell, A.K. Hahs, and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach*, pp. 1–5. Cambridge University Press, Cambridge.

McDonnell, M.J., Hahs, A.K., & Breuste J. (eds) (2009) *Ecology of Cities and Towns: A Comparative Approach*. Cambridge University Press, Cambridge.

McDonnell, M.J., & Pickett S.T.A. (1990) Ecosystem Structure and Function along Urban-Rural Gradients: An Unexploited Opportunity for Ecology. *Ecology* **71**: 1232–7.

McDonnell, M.J., & Pickett S.T.A. (eds) (1993) *Humans as Components of Ecosystems: Subtle Human Effects and the Ecology of Populated Areas*. Springer-Verlag, New York.

McDonnell, M., Pickett, S., Groffman, P., Bohlen, R., Pouyat, W., Zipperer, W., Parmelee, R., Carreiro, M., & Medley, K. (1997) Ecosystem Processes along an urban-to-rural gradient. *Urban Ecosystems* **1**:21–36

McGlade, J. (1999) Archaeology and the evolution of cultural landscapes: towards and interdisciplinary research agenda. In P. J. Ucko and R. Layton (eds) *The Archaeology and Anthropology of Landscape*. Routledge, London.

McGovern, T.H., Bigelow, G., Amorosi, T., & Russell, D. (1988) Northern islands, human error, and environmental degradation: a view of social ecological change in the medieval North Atlantic. *Human Ecology* **16**(3):225–69.

McGranahan, G., Jacobi, P., Songsore, J.C., Surjadi, & Kjellen, M. (2001) *The Citizens at Risk, From Urban Sanitation to Sustainable Cities*. Earthscan, London.

McGrath, B.P., Marshall, V., Cadenasso, M.L., Grove, J.M., Pickett S.T.A., & Towers, J. (eds) (2007) *Designing Patch Dynamics*. Princeton Architectural Press, Princeton, New Jersey.

McHarg, I. (1963) *Design With Nature*. Doubleday, Garden City, NJ.

McHarg, I. (1969) *Design with Nature*. Published for the American Museum of Natural History, the Natural History Press, Garden City, N.Y.

McIntosh, R.P. (1985) The *Background of Ecology: Concept and Theory*. Cambridge University Press, New York.

McIntyre, N.E. (2000) Ecology of urban arthropods: a review and a call to action. *Annals of the Entomological Society of America* **93**:825–35.

McIntyre, N.E., Knowles-Yanez, K., & Hope, D. (2000) Urban ecology as an interdisciplinary field: differences in the use of 'urban' between the social and natural sciences. *Urban Ecosystems* **4**:5–24.

McIntyre, N.E., Rango, J., Fagan, W.F., & Faeth, S.H. (2001) Ground arthropod community structure in a heterogeneous urban environment. *Landscape and Urban Planning* **52**:257–74.

McKinlay, J.B. (1979) A case for refocusing upstream: The political economy of illness. pp 9–25. In: E.G. Jaco (ed) *Patients, Physicians and Illness*. 3rd edn. Free press, New York.

McKinney, M.L. (2002) Urbanization, biodiversity and conservation. *BioScience* **52**:883–90.

McKinney, M.L. (2006) Urbanization as a major cause of biotic homogenization. *Biological Conservation* **127**(3): 247–60.

McKinney, M.L. (2008) Effects of Urbanization on Species Richness: A Review of Plants and Animals. *Urban Ecosystems* **11**:161–76.

McPherson, E.G., Nowak, D., Heisler, G., Grimmond, S., Souch, C., Grant, R., & Rowntree, R. (1997) Quantifying urban forest structure, function and value: the chicago urban forest climate project. *Urban Ecosystems* **1**:49–6 1.

McShane, C. (1994) *Down the Asphalt Path, The Automobile and the American City*. Columbia University Press, New York.

Meehl, A.G., & Tebaldi, C. (2004) More intense, more frequent, and longer lasting heat waves in the 21st century. *Science* **305**:994–7.

Meffert, D., Etheridge, D., & Campanella, R. (2004) Sustainability, Survivability and the paradox of New Orleans, New York Academy of Sciences .doi:10.1196/annals 1319.094

Mehtälä, J., & Vuorisalo, T. (2006) Changing values of urban biodiversity: a reply to Miller. *Trends in Ecology & Evolution* **21**(3):1 16–17.

Melles, S., Glenn, S., & Martin, K. (2003) Urban bird diversity and landscape complexity: species-environment associations along a multiscale habitat gradient. *Conservation Ecology* **7**(1):5.

Menge, B.A., & Sutherland, J.P. (1987) Community regulation - variation in disturbance, competition, and predation in relation to environmental stress and recruitment. *American Naturalist* **130**:730–57.

Mentens, J., Raes, D., & Hermy, M. (2006) Green roofs as a tool for solving the rainwater runoff problem in the urbanized 21st century? *Landscape Urban Planning* **77**(3): 217–26.

Menzel, A., & Fabian, P. (1999) Growing season extended in Europe. *Nature* **397**:659–63.

Metro (2002) Green *Streets: Innovative Solutions for Stormwater and Stream Crossings*. Metro, Portland, OR.

Meuser, H., & Blume, H.P. (2001) Characteristics and classification of anthropogenic soils in the Osnabrück area, Germany. *J. Plant Nutr. Soil Sci*. **164**:351–8.

Meuser, H. (1996) Ein Bestimmungsschlüssel für natürliche und technogene Substrate in Böden städtisch-industrieller Verdichtungsräume. *Ztschr. Pflanzenern. Bodenk*. **159**: 305–12.

Meuser, H. (2002) Anthropogene Gesteine. In: H.P Blume, P. Felix-Henningsen, W.R. Fischer *et al*. (eds): *Handbuch Bodenk*, ch. 2.1.2.6. Wiley and Sons, New York.

Middendorf, G., & Grant, B.W. (2003) The challenge of environmental justice and the role of ecologists. *Frontiers in Ecology and Environment* **1**:154–55.

Millard, A. (2004) Indigenous and spontaneous vegetation: their relationship to urban development in the city of Leeds, UK. *Urban Forestry and Urban Greening* **3**: 39–47.

Millard, A. (2008) Semi-natural vegetation and its relationship to designated urban green space at the landscape scale in Leeds, UK. *Landscape Ecology* **23**:1231–41.

Millennium Ecosystem Assessment (2003) *Ecosystems and Human Well-Being: A Framework for Assessment*. Island Press, Washington, DC.

Millenium Ecosystem Assessment (2005a) *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC [online] http://www.maweb.org/en/index.aspx [accessed 17 October 2010].

Millennium Ecosystem Assessment (2005b) *Living Beyond our Means – Natural Assets & Human Wellbeing: A Statement from the Board*. UNEP, New York. [online] www.milleniumassessment.org.

Millennium Ecosystem Assessment (2005c) *Ecosystems and Human Well Being, Findings from Conditions and Trend Working Group*, Island Press, London and Washington DC.

Millennium Ecosystem Assessment (2005d) *Ecosystems and Human Well-Being, Volume 1 Current State and Trends*. Island Press, Washington DC.

Miller, J.R. (2005) Biodiversity conservation and the extinction of experience. *Trends in Ecology & Evolution* **20**:430–34.

Miller, S.J., & Wardrop, D.H. (2006) Adapting the floristic quality assessment index to indicate anthropogenic disturbance in central Pennsylvania wetlands. *Ecological Indicators* **6**:313–26.

Miller-Rushing, A.J., & Primack, R.B. (2008) Global warming and flowering times in Thoreau's Concord: a community perspective. *Ecology* **89**:332–41.

Mind, (2007) *Ecotherapy: The Green Agenda for Mental Health*. Mind, London.

Mirsal, I.A. (2008) Soil *Pollution: Origin, Monitoring and Remediation*. Springer, Berlin.

Mitchell, J.C., & Klemens, M.W. (2000) Primary and secondary effects of habitat alteration. In: M.W. Klemens (ed), *Turtle Conservation*, pp. 5–32. Smithsonian Institution Press, Washington, DC.

Mitchell, J.C., Jung Brown, R.E, & Bartholomew, B. (2008) *Urban Herpetology*. Society for the Study of Amphibians and Reptiles (SSAR). Salt Lake City, UT.

Mitchell, J.C., Jung Brown, R.E., & Bartholomew B. (eds). (2008) *Urban Herpetology*. Herpetological Conservation, Vol. 3. Society for the Study of Amphibians and Reptiles, Salt Lake City, UT.

Mitchell, R., & Popham, F. (2008) Effect of exposure to natural environment on health inequalities: an observational population study. *The Lancet* **372**: 1655–60. http://www.thelancet.com/journals/lancet/issue/vol372no9650/PIIS0140-6736(08)X6047-7 (accessed 17 October 2010)

Mitsch, W.J., & Jorgensen, S.E. (1989) Introduction to Ecological Engineering. In: W.J. Mitsch, and S.E. Jorgensen (eds), *Ecological Engineering: An Introduction to Ecotechnology*, pp. 3–12. John Wiley & Sons, New York.

Mitsch, W.J., & Gosselink, J.G. (2007) *Wetlands* (4th edn.). Wiley, Hoboken, New Jersey.

Moll, D. (1980) Dirty river turtles. *Natural History* **89**: 42–49.

Møller, A.P. (2008) Flight distance of urban birds, predation, and selection for urban life. *Behavior Ecology and Sociobiology* **63**:63–75.

Møller, A.P., Mousseau, T.A., Milinevsky, G., Peklo, A., Pysanets, E., & Szep, T. (2005) Condition, reproduction and survival of barn swallows from Chernobyl. *Journal of Animal Ecology* **74**:1 102–11.

Montgomery, M.R., Stren, R., Cohen, B., & Reed, H.E. (2003) *Cities Transformed, Demographic Change in its Implications in the Developing World*. National Academies Press, Washington DC.

Moore, A.A., & Palmer, M.A. (2005) Invertebrate biodiversity in agricultural and urban headwater streams: implications for conservation and management. *Ecological Applications* **15**:1 169–77.

Morgan, D.K.J., Waas J.R., & Innes, J. (2009) An inventory of mammalian pests in a New Zealand city. *New Zealand Journal of Zoology* **36**:23–33.

Moriwaki, R., Kanda, M., & Nitta, H. (2006) Carbon dioxide build-up within a suburban canopy layer in winter night. *Atmospheric Environment* **40**:1394–1407.

Morse, W.F. (2007) Linking social and ecological systems: a theoretical perspective. In: *Emerging Issues along Urban/Rural Interfaces 2: Linking Land-use Science and Society*, pp. 246–50. Auburn University, Auburn, Atlanta, GA.

Mörtberg, U., & Wallentinus, H.G. (2000) Red-listed forest bird species in an urban environment - assessment of green space corridors. *Landscape and Urban Planning* **50**: 215–26.

Mosalam Shaltout, M.A., Hassan, A.H., & Fathy, A.M. (2001) Total suspended particles and solar radiation over Cairo and Aswan. *Renewable Energy* **23**:605–19.

Moskovits, D.K., Fialkowski, C., Mueller, G.M., Sullivan, T.A., Rogner, J., & Mc Cance, E. (2004) Chicago Wilderness: A new force in urban conservation. In: C. Alfsen-Norodom, B.D. Lane, and M. Corry (eds.) *Urban Biosphere and Society: Partnership of Cities*, pp. 215–36. Ann. N.Y. Acad. Sci. 1023; New York.

Moskovits, D.K., Fialkowski, C.J., Mueller, G.M., & Sullivan, T.A. (2002) Chicago Wilderness: a new force in urban conservation. *Annals of the Missouri Botanic Garden* **89**:153–63.

Mosyakin, S.L., & Yavorska, O.G. (2003) The nonnative flora of the Kiev (Kyiv) urban area, Ukraine: a checklist and brief analysis. *Urban Habitats* **1**:45–65.

Mueller, N. (2007) Distinctive characteristics of urban biodiversity. In: N. Mueller (ed) *Proceedings of 'Cities and Biodiversity: Achieving the 2010 Biodiversity Target'*. March, 2007, Curitiba, Brazil. http://www.fh-erfurt.de/urbio/httpdocs/index.html

Muratet, A., Machon, N., Jiguet, F., Moret, J., & Porcher, E. (2007) The role of urban structures in the distribution of wasteland flora in the greater Paris area, France. *Ecosystems* **10**:661–71.

Muratet, A., Porcher, E., Devictor, V., Arnal, G., Moret, J., Wright, S., *et al*. (2008) Evaluation of floristic diversity in urban areas as a basis for habitat management. *Applied Vegetation Science* **11**:451–60.

Nachtergaele, F. (2010) *Digital Soil Map of the World.* [online] http://www.fao.org/nr/land/soils/digital-soil-map-of-the-world/en/ [accessed 15 August 2010]

Nassauer, J.I. (1995) Culture and changing landscape structure. *Landscape Ecology* **10**:229–37.

Nassauer, J. (1997) *Placing Nature: Culture and Landscape Ecology*. Island Press, Washington, DC.

Nassauer, J. (2008) Cultural sustainability. In: A. Carlson and S. Lintott, (eds) *Nature, Aesthetics and Environmentalism*. Columbia University Press, New York.

National Research Council (NRC). (1999) *Our Common Journey: A Transition toward Sustainability.* National Academy Press,Washington, D.C.

Natural England (2009) [online] http://www.sssi.naturalengland.org.uk/Special/sssi/sssi_details.cfm?sssi_id=2000457.

Natural England (2010) 'Nature Nearby': Accessible Natural Greenspace Standards, Peterborough, Natural England. [online] http://naturalengland.etraderstores.com/NaturalEnglandShop/product.aspx?ProductID=887a3e18-5296-4f1f-ae0c-15e02debf0e5 [accessed 17 October 2010]

Neff, K.P., & Baldwin, A.H. (2005) Seed dispersal into wetlands: techniques and results for a restored tidal freshwater marsh. *Wetlands* **25**(2):392–404.

Neff, K.P., Rusello, K., & Baldwin, A.H. (2008) Rapid seed bank development in restored tidal freshwater wetlands. *Restoration Ecology* **17**:539–48.

Neil, K., & Wu, J. (2006) Effects of urbanization on plant flowering phenology: a review. *Urban Ecosystems* **9**: 243–57.

Ner, S.E., & Burke, R.L. (2008) Direct and indirect effects of urbanization on diamond-backed terrapins of the Hudson River Bight: distribution and predation in a human-modified estuary. In: J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds.), *Urban Herpetology*, pp. 107–17. Herpetological Conservation Vol. 3, Society For the Study of Amphibians and Reptiles, Salt Lake City, UT.

Netting, M.G. (1948) Reptiles and amphibians in the classroom zoo. *The American Biology Teacher* **10:**173–78.

Neuwirth, R. (2005) *Shadow Cities: A Billion Squatters, A New Urban World*. London & New York, Routledge.

New York City Soil Survey Staff (2005) *New York City Reconnaissance Soil Survey*. United States Department of Agriculture, Staten Island, NY.

Newman, P., & Jennings, I. (2008) *Cities as Sustainable Ecosystems Principles and Practices*. Island Press, USA.

Newman, P.W.G., & Kenworthy, J.R. (1989) *Cities and Automobile Dependence*. Gower Publications, Aldershot.

Niell, R.S., Brussard, P.F., & Murphy, D.D. (2007) Butterfly community composition and oak woodland vegetation response to rural residential development. *Landscape and Urban Planning* **81**:235–45.

Niemelä J., (1999) Ecology and urban planning. *Biodiversity and Conservation* **8**:1 19–31.

Niemelä, J., & Kotze, D.J. (2009) Carabid beetle assemblages along urban to rural gradients: A review. *Landscape and Urban Planning* **92**:65–71.

Niemelä, J., & Spence, J.R. (1991) Distribution and abundance of an exotic ground-beetle (Carabidae): a test of community impact. *Oikos* **62**:351–59.

Niemelä, J., Kotze, D.J., & Yli-Pelkonen V. (2009) Comparative urban ecology: challenges and possibilities. In: M.J., McDonnell, A.K. Hahs and J. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach.* Cambridge University Press, Oxford.

Niering, W.A. (1970) The ecology of wetlands in urban areas. In P. Danserau (ed), *Challenge for Survival: Land, Air, and Water for Man in Megalopolis,* pp. 199–208. New York Columbia University Press, New York.

Nihei, Y., & Higuchi, H. (2001) When and where did crows learn to use automobiles as nutcrackers? *Tohoku Psychologica Folia* **60**:93–7.

Niinemets, U., & Peňuelas, J. (2008) Gardening and urban landscaping: significant players in global change. *Trends in Plant Science* **13**(2):60–65.

Nilsson, K.L., & Florgård, C. (2009) Ecological scientific knowledge in urban and land-use planning. In: M.J. McDonnell, A.K. Hahs, & J.H. Breuste, (eds) *Ecology of Cities and Towns: A Comparative Approach*, pp. 549–56. Cambridge University Press, Cambridge.

Nix, H. (1972) The City as a Life System? *Proceedings of the Ecological Society of Australia* **7**.Can berra.

NLUD (2003) Land-use and Land Cover Classification—version 4.4. National Land-use Database. [online] http://www.nlud.org.uk [accessed July 2005].

Norra, S.: & Stüben, D. (2003) Urban soils. *J. Soils Sedim.* **3** (4): 229–33.

North, D.C. (1990) *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press.

Nottridge, R. (2009) *Wildlife Gardening*. The Crowood Press Ltd, Ramsbury.

Nowak, D.J., Crane, D.E., Walton, J.T., Twardus, D.B., & D., John F. (2003) Understanding and quantifying urban

forest structure, functions and value. In: Kenney, W.A,. McKay, J., van Wassenaer, P. (eds) *Urban Forest Planning: Sustainable Forests for Healthy Communities*: Proceedings of the 5th Canadian urban forest conference; 7–9 October 2002; Markham, Ontario. Tree Canada Foundation, Ottawa, Ontario.

Nowak, D.J., & Crane, D.E. (2002) Carbon storage and sequestration by urban trees in the USA. *Environmental Pollution* **116**:381–89.

Nowak, D.J., & Rowntree, R.A. (1990) History and range of Norway maple. *Journal of Arboriculture* **16**:2 91–96.

Nowak, D.J., Rowntree, R.A., McPherson, E.G., Sisinni, S.M., Kerkmann, E.R., & Stevens, J.C. (1996) Measuring and analyzing urban tree cover. *Landscape and Urban Planning* **36**:49–57.

NRDC (Natural Resources Defense Council). (2001) Urban stormwater solutions: These case studies show new ways cities, developers and others are reducing stormwater pollution. [online] http://www.nrdc.org/water/pollution/nstorm.asp´[accessed 19 October 2009].

Numata, M. (1982) Changes in ecosystem structure and function in Tokyo. In: R. Bornkamm, J.A. Lee, and M.R.D. Seaward (eds) *Urban Ecology*. Blackwell Scientific Publications, Oxford.

NWRA (North West Regional Assembly) (2008) *Submitted Draft Regional Spatial Strategy for the North West of England*. North West Regional Assembly, Wigan.

NYDEC (2009) [online] http://www.dec.ny.gov/lands/4940.html.

O'Connor, T.P. (1997) Working at relationships: another look at animal domestication. *Antiquity* **71**:149–55.

O'Neill, R.V. (2001) Is it time to bury the ecosystem concept? (With full military honors of course!) *Ecology* **82**: 3275–84.

O'Neill, R.V., & Kahn, J.R. (2000) *Homo economus* as a keystone species. *BioScience* **50**:333–37.

Oberdorfer, E. (1975) Die Mauerfugen-Vegetation Siziliens. *Phytocoenologia, Stuttgart* **2**:146–53.

Oberndorfer, E., Lundholm, J., Bass, B., Coffman, R.R., Doshi, H., Dunnett, N., Gaffin, S., Kohler, M., Liu, K.K.Y., & Rowe, D.B. (2007) Green roofs as urban ecosystems: ecological structures, functions, and services. *Bioscience* **57**:823–33.

Odling-Smee, F.J., Laland, K.N., & Feldman, M.W. (2003) *Niche Construction: The Neglected Process in Evolution*. Princeton University Press, Princeton, NJ.

ODPM (2002) *Living Places - Cleaner, Safer, Greener.* Office of the Deputy Prime Minister, London.

ODPM (2005) *Planning Policy Statement 9: Biodiversity and Geological Conservation.* Office of the Deputy Prime Minister, London.

Odum, E. (1991) Earth stewardship. *Pan Ecology* **6**(5)1–5.

Odum, E., Barrett G.W., & Brewer, R. (2004) *Fundamentals of Ecology*. Thomson Brooks/Cole, Pacific Grove, CA.

Offerle, B., Grimmond, S., Fortuniak, K., Klysik, K., & Oke, T. (2006) Temporal variations in heat fluxes over a central European City centre. *Theoretical and Applied Climatology* **84**:103–15.

Oke, T.R. (1987) *Boundary Layer Climates*. 2nd edn co-published by Routledge/London and John Wiley and Sons/New York.

Oke, T.R., Spronken-Smith, R.A., Jauregui, E., & Grimmond, S. (1999) The energy balance of central Mexico City during the dry season. *Atmospheric Environment* **33**:3919–30.

Olden, J.D., Poff, N.L., Douglas, M.R., Douglas, M.E., & Fausch, K.D. (2004) Ecological and evolutionary consequences of biotic homogenization. *TRENDS in Ecology and Evolution* **19**:18–24.

Opdam, P., Steingrover, E., & van Rooij, S. (2006) Ecological networks: A spatial concept for multi-actor planning of sustainable landscapes. *Landscape and Urban Planning* **75**(3–4):322–32.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, New York.

Owen, J. (1991) *Ecology of a Garden*. Cambridge University Press.

Ozer, S., Irmak, M.A., & Yilmaz, H. (2008) Determination of roadside noise reduction effectiveness of *Pinus sylvaticum L. and Populus nigra* L. in Erzurum, Turkey. *Environmental Monitoring and Assessment* **144**:191–97.

Özgüner, H., & Kendle, A.D. (2006) Public attitudes towards naturalistic versus designed landscapes in the city of Sheffield (UK). *Landscape and Urban Planning* **74**: 139–57.

Özgüner, H., Kendle, A.D., & Bisgrove, R.J. (2007) Attitudes of landscape professionals towards naturalistic versus formal urban landscapes in the UK. *Landscape and Urban Planning* **81**:34–45.

Paavola, J., & Adger, W.N., (2005) Institutional ecological economics. *Ecological Economics* **53**:353–68.

Pacey, A., (1991) *Technology in World Civilization*. Cambridge: MIT University Press.

Pacheco, R., & Vasconcelos, H.L. (2007) Invertebrate conservation in urban areas: ants in the Brazilian Cerrado. *Landscape and Urban Planning* **81**:193–99.

Page, R.J.C., & Bennett, D.H. (1994) Feral cat control in Britain: developing a rabies contingency strategy. In: W.S. Halverson and A.C. Crabb. *Proceedings of the Sixteenth Vertebrate Pest Conference*. **16**:21–27.

Palumbi, S.R. (2001) Humans as the world's greatest evolutionary force. *Science* **293**:1786–90.

Panno, S.V., Nuzzo, V.A., Cartwright, K., Hensel, B.R., & Krapac, I.G. (1999) Impact of urban development on the chemical composition of ground water in a fen-wetland complex. *Wetlands* **19**(1):236–45.

Paoletti, E. (2009). Ozone and urban forests in Italy. *Environmental Pollution* **157**:1506–12.

Park, R.E., & Burgess, E.W. (1967) *The City.* University of Chicago Press, Chicago.

Parker, D.C., Manson S.M., Janssen, M.A., Hoffmann, M.J., & Deadman. P. (2003) Multi-agent systems for simulation of land-use and land-cover change: a review. *Annals of the Association of American Geographers* **93**: 314–37.

Parker, H., & Rosell, F. (2003) Beaver management in Norway: a model for continental Europe? *Lutra* **46**: 223–34.

Parlow, E. (2006) Besonderheiten des Stadtklimas. In: Gebhardt, H., R. Glaser, U. Radtke, P. Reuber (eds) *Geographie* ch. 9, p. 56–60. Elsevier Heidelberg.

Parris, K.M. (2006) Urban amphibian assemblages as meta-communities. *Journal of Animal Ecology* **75**: 757–64.

Parsons, R. (1995) Conflict between ecological sustainability and environmental aesthetics: Conundrum, canärd or curiosity. *Landscape and Urban Planning* **32**: 227–44.

Parsons, R., & Daniel, T.C. (2002) Good looking: in defense of scenic landscape aesthetics. *Landscape and Urban Planning* **60**:43–56.

Partecke, J., Gwinner, E., & Bensch. (2006) Is urbanization of European blackbirds (*Turdus merula*) associated with genetic differentiation? *Journal of Ornithology* **147**: 549–52.

Pataki, D.E., Alig, R.J., Fung, A.S., Golubiewski, N.E., Kennedy, C.A., McPherson, E.G., *et al*. (2006) Urban ecosystems and the North American carbon cycle. *Global Change Biology* **12**:2092–2102.

Patrick, G.J., & Farmer, J.G. (2007) A lead isotopic assessment of tree bark as a biomonitor of contemporary atmospheric lead. *Science of the Total Environment* **388**: 343–56.

Patwardhan, A., Nalavade, S., Sahasrabuddhe, K., & Utkarsh, G. (2001) Urban wildlife and protected areas in India. *Parks, Cities and Protected Areas* **11**:28– 34.

Pauchard, A., Aguayo, M., Peña, E., & Urrutia, R. (2006). Multiple effects of urbanization on the biodiversity of developing countries: The case of a fast-growing metropolitan area (Concepción, Chile). *Biological Conservation* **127**: 272–81.

Paul, M.J., & Meyer, J.L. (2001) Streams in the Urban Landscape. *Annual Review of Ecology and Systematics,* **32**: 333–65.

Pauleit, S. & Duhme, F. (2000) Assessing the environmental performance of land cover types for urban planning. *Landscape and Urban Planning* **52**(1):1–20.

Pauleit, S., & Golding, Y. (2005) The spatial impact of urban compaction: a fine scale investigation based on Merseyside. *Town Planning Review* **76**(2):143–66.

Pauleit, S., Ennos, R., & Golding, Y. (2005) Modeling the environmental impacts of urban land-use and land cover change—a study in Merseyside, UK. *Landscape and Urban Planning* **71**(2–4):295–310.

Pauw, A. (2007) Collapse of a pollination web in small conservation areas. *Ecology* **88**:1759–69.

Pavao-Zuckerman, M.A. (2008) The nature of urban soils and their role in ecological restoration in cities. *Restoration Ecology* **16**(4):642–49.

Pavao-Zuckerman, M.A., & Byrne, L.B. (2009) Scratching the surface and digging deeper: exploring ecological theories in urban soils. *Urban Ecosyst* **12**:9–20.

Pavlova, D., & Tonkov, S. (2005) The wall flora of the Nebet Tepe Architectural Reserve in the city of Plovdiv (Bulgaria), *Acta Botanica Croatica* **64**:357–68.

Payne, R.M. (1989) The flora of walls in the Chew Valley, *Somerset Archaelogy and Natural History* **133**:231–42.

Pediaditi, K., Wehrmeyer, W., & Chenoweth, J. (2005) Monitoring the sustainability of brownfield redevelopment projects: the Redevelopment Assessment Framework. *Land Contamination & Reclamation* **13**: 173–83.

Pedlowski, M.A., Carneiro da Silva, V.A., Corabi Adell, J.J., & Heynen, N.C. (2002) Urban forest and environmental inequality in Campos dos Goytacazes, Rio de Janeiro, Brazil. *Urban Ecosystems* **6**:9–20.

Perez, S.P., Doque, P., & Wolff, M. (2005) Successional behavior and occurrence matrix of carrion-associated arthropods in the urban area of Medellin, Colombia. *Journal of Forensic Sciences* **50**:448–54.

Perry, G., Buchanan, B.W., Fisher, R.N., Salmon, M., & Wise, S.E. (2008) Effects of artificial night lighting on amphibians and reptiles in urban environments. In: J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds.), *Urban Herpetology*, pp. 239–56. Herpetological Conservation Vol. 3, Society for the Study of Amphibians and Reptiles, Salt Lake City, UT.

Pickett, S.T.A., Burch, W.R., Jr., Dalton, S.E., Foresman, T.W., Grove, J.M., & Rowntree, R. (1997) A conceptual framework for the study of human ecosystems in urban areas. *Urban Ecosystems* **1**:185–99.

Pickett, S.T.A., & Cadenasso, M.L. (2008) Linking ecological and built components of urban mosaics: an open cycle of ecological design. *Journal of Ecology* **96**:8–12.

Pickett, S.T.A., & Cadenasso, M.L. (2009) Altered resources, disturbance, and heterogeneity: A framework for comparing urban and non-urban soils. *Urban Ecosyst*. **12**: 23–44.

Pickett, S.T.A., Cadenasso, M.L., Grove, J.M., Nilon, C.H., Pouyat, V., Zipperer, W.C., & Costanza, R. (2001) Urban ecological systems: linking terrestrial ecology, physical and socioeconomic components of metropolitan areas. *Annual Review of Ecology and Systematics* **32**: 127–57.

Pickett, S.T.A., Cadenasso, M.L., & Grove, J.M. (2004) Resilient cities: meaning, models and metaphor for

integrating the ecological, socio-economic and planning realms. *Landscape and Urban Planning* **69**:369–84.

Pickett, S.T.A., Cadenasso, M.L., Grove, J.M., Groffman, P.M., Band, L.E., Boone, C.G., Burch, W.R. Jr, Grimmond, C.S.B., Hom, J., Jenkins, J.C., Law, N.L., Nilon, C.H., Pouyat, R.V., Szlavecz, K., Warren, P.S., & Wilson, M.A. (2008) Beyond urban legends: an emerging framework of urban ecology, as illustrated by the Baltimore ecosystem study. *BioScience* **58**: 139–50.

Pickett, S.T.A., Cadenasso, M.L., & Jones, C.G. (2000) Generation of heterogeneity by organisms: creation, maintenance, and transformation. In: M. Hutchings, E.A. John and A.J. Stewart (eds) *Ecological Consequences of Habitat Heterogeneity*, pp. 33–52. Blackwell, New York.

Pickett, S.T.A., Cadenasso, M.L., McDonnell, M., & Burch, W. (2009) Frameworks for urban ecosystem studies: gradients, patch dynamics and the human ecosystem in the New York metropolitan area and Baltimore, USA. In: M.J. McDonnell, A.K. Hahs, and J.H. Breuste (eds) *Ecology of Cities and Towns: A Comparative Approach*, pp. 25–50. Cambridge University Press, Cambridge.

Pickett, S.T.A., and M.J. McDonnell (1993) Humans as Components of Ecosystems: A Synthesis. In *Humans as Components of Ecosystems: Subtle Human Effects and the Ecology of Populated Areas*. Edited by M.J. McDonnell and S.T.A. Pickett. Springer-Verlag: New York.

Pickett, S.T.A., Meiners, S.J., & Cadenasso M.L. (2010) Domain and propositions of succession theory. In S.M. Scheiner and M.R. Willig (eds) *Theory of Ecology*. University of Chicago Press, Chicago.

Pickett, S.T.A., Parker V.T., & Fiedler, P.L. (1992) The new paradigm in ecology: Implications for conservation biology above the species level. In: *Conservation Biology*, by P.L. Fiedler and S.K. Jain (eds). Chapman and Hall, New York.

Pickett, S.T.A., & White, P.S. (1985) *The Ecology of Natural Disturbance and Patch Dynamics*. Academic Press, New York.

Pierzynski, G.M., Sims, J.T., & Vance, G.F. (1994) *Soils and Environmental Quality*. Lewis Publishers, Boca Raton.

Pietsch, J., & Kamieth, H. (1991) *Stadtböden. Entwicklungen, Belastungen, Bewertung und Planung*. Blottner, Taunusstein.

Pigeon, G., Legain, D., Durand, P., & Masson, V. (2007). Anthropogenic heat release in an old European agglomeration (Toulouse, France). *International Journal of Climatology* **27**:1969–81.

Pigou, A.C. (1952) *The Economics of Welfare*. *Central Park, New York.*

Pilgrim, D.H., & Cordery, I. (1992) Flood runoff. In D.R. Maidment (ed), *Handbook of Hydrology*, pp. 9.1–9.22. McGraw-Hill, New York.

Pinder, D.A., & Witherick, M.E. (1990) Port industrialization, urbanization and wetland loss. In: M. Williams (ed), *Wetlands: A Threatened Landscape* (pp. 235–66). Basil Blackwell, Cambridge, Massachusetts.

Pinheiro, M.H.O., de Almeda Neto, L.C., & Monteiro, R. (2006) Urban areas and isolated remnants of habitats: an action proposed for botanical gardens. *Biodiversity and Conservation* **15**:2747–64.

PlanNYC (2007) *A Greener, Greater New York*. City of New York, New York.

Platt, R.H., Rowntree, R.A., & Muick, P.C. (1994) *The Ecological City: Preserving and Restoring Urban Biodiversity*. The University of Massachusetts Press, Amherst.

Platt, R.H., Rowntree, R.A, & Muick, P.C. (1994) *The Ecological City: Preserving and Restoring Urban Biodiversity*. University of Massachusetts Press, Amherst, USA.

Pluquet, E., & Lenz, H. (1997) Erfassung und Dokumentation des Stoffbestandes der Böden im Land Bremen. *Mitt. Dt. Bodenk. Ges.* **84**:175–8.

Porter, E., Forschner, B.R., & Blair, R.B. (2001) Woody vegetation and canopy fragmentation along a forest-to-urban gradient. *Urban Ecosystems* **5**:131–51.

Pouyat, R., Groffman, P., Yesilonis, I. & Hernandez, L. (2002) Soil carbon pools and fluxes in urban ecosystems. *Environmental Pollution* **116**:S107–18.

Pouyat, R.V., McDonnell, M.J., & Pickett, S.T.A. (1997) Litter decomposition and nitrogen mineralization in oak stands along an urban-rural land-use gradient. *Urban Ecosystems* **1**:1 17–31.

Pouyat, R.V., Yesilonis, I.D., & Nowak, D.J. (2006) Carbon storage by urban soils in the United States. *J. Environ. Qual*. **35**:1566–75.

Pouyat, R.V., Yesilonis, I.D., Russell-anelli, J., & Neerchal, N.K. (2007) Soil chemical and physical properties that differentiate urban land-use and cover types. *Soil. Sci. Soc. Am. J*. **71**:1010–9.

Powell, A. (2009) Urban areas offer hidden biodiversity. *Harvard Science*. [online] http://www.harvardscience.harvard.edu/environments/articles/urban-areas-offer.

Pratt, C.J., Mantle, J.D.G., & Schofield, P.A. (1995) UK research into the performance of permeable pavement, reservoir structures in controlling stormwater discharge quanitity and quality. *Wat. Sci. Techn*. **32**(1): 63–9.

Pretty, J., Griffin, M., Peacock, J., Hine, R., Sellens, M., & South, N. (2005) *A Countryside for Health and Well-Being: The Physical and Mental Health Benefits of Green Exercise*. Countryside Recreation Network, Sheffield.

Pretty, J., Peacock, J., Hine, R., Sellens, M., South, N., & Griffin, M. (2007) Green exercise in the UK countryside:

effects on health and psychological well-being, and implications for policy and planning. *Journal of Environmental Planning and Management* **50**:21 1–31.

Primack, R., Kobori, H., & Mori, S. (2000) Dragonfly pond restoration promotes conservation awareness in Japan. *Conservation Biology* **14**:1553–54.

Puth, L., & Burns, C. (2009) New York's nature: a review of the status and trends in species richness across the metropolitan region. *Diversity and Distributions* **15**(1): 12–21.

Pyle, R.M. (1978) The extinction of experience. *Horticulture* **56**:64–67.

Pyšek, P. (1998) Alien and native species in Central European urban floras: a quantitative comparison. *Journal of Biogeography* **25**:155–63.

Pytte, C.L. (1997) Song organization of House Finches at the edge of an expanding range. *Condor* **99**:942–54.

Quigley, M. (2002) Franklin Park: 150 years of changing design, disturbance, and impact on tree growth. *Urban Ecosystems* **6**(3):223–35.

Quigley, M., & Platt, W. (2003) Composition and structure of seasonally deciduous forests in the Americas. *Ecological Monographs* **73**:87–106.

Raciti, S.M., Groffman, P.M., & Fahey, T.J. (2008) Nitrogen retention in urban lawns and forests. *Ecological Applications* **18**:1615–26.

Radeloff, V.C., Hammer, R.B., Stewart, S.I., Fried, J.S., Holcomb, S.S., & McKeefry, J.F. (2005) The wildland-urban interface in the United States. *Ecological Applications* **15**: 799–805.

Ramsar (2002) [online] http://ramsar.wetlands.org/GISMaps/WebGIS/tabid/809/Default.aspx

Ramsar (2005) [online] http://ramsar.wetlands.org/GISMaps/WebGIS/tabid/809/Default.aspx

Ramsar (2009a) [online] http://www.ramsar.org/profile/profiles_uae.htm

Ramsar (2009b) [online] http://ramsar.org/ris/key_ris_e.htm#type

Ramsar (2009c) [online] http://www.ramsar.org/strp/key_strp_index.htm

Ramsar (2009d) [online] http://www.ramsar.org/res/key_res_ix_14_e.htm

Randrup, T.B., McPherson, E.G., & Costello, L.R. (2001) A review of tree root conflicts with sidewalks, curbs, and roads, *Urban Ecosystems* **5**:209–25.

Rango, J.J. (2005) Arthropod communities on creosote bush (*Larrea tridentate*) in desert patches of varying degrees of urbanization. *Biodiversity and Conservation* **14**: 2185–206.

Rapoport, E.H. (1993) The process of plant colonization in small settlements and large cities. In: M.J. McDonnell and S.T.A. Pickett, (eds) *Humans as Components of Ecosystems: The Ecology of Subtle Human Effects and Populated Areas*, pp. 190–207. Springer-Verlag, New York.

Rask, A.M., & Kristoffersen, P. (2007) A review of non-chemical weed control on hard surfaces. *Weed Research* **47**:370–80.

Ravetz, J. (2000) *City-Region 2020: Integrated Planning for a Sustainable Environment*. Earthscan, London. (Chinese language version, transl. Jian-Cheng Lin and Tian-Tian Hu, Taipei, Chan's Publishing Co. Ltd, Taiwan).

Ravetz, J. (2006) Environment in transition in an industrial city-region: analysis and experience: In: G. Granahan and P. Marcotullio (eds) *Scaling Urban Environmental Challenges: From Local to Global and Back*. Earthscan with the International Institute for Environment & Development, London.

Ravetz, J. (2009) Community and citizen – emerging models for socially engaged environmental governance. *Environmental Scientist (Special issue on environmental futures)* **July 2009**:31–34.

RCEP (2007) *The Urban Environment.* Royal Commission on Environmental Pollution, Norwich.

Rebele, F. (1994) Urban ecology and special features of urban ecosystems. *Global Ecology and Biogeography Letters* **4**:173–87.

Redman, Charles L. (1999) *Human Impact on Ancient Environments*. The University of Arizona Press, Tucson, Arizona.

Redman, C.L., & Foster, D.R. (2008) *Agrarian Landscapes in Transition: Comparisons of Long-Term Ecological and Cultural Change*. Oxford University Press, New York.

Redman, C.L., Grove, J.M., & Kuby, L.H. (2004) Integrating social science into the long-term ecological research network: social dimensions of ecological change and ecological dimensions of social change. *Ecosystems* **7**: 161–71.

Rees, P. (2003) *Urban Environments and Wildlife Law*. Blackwell Publishers, Oxford, UK.

Rees, W.E. (1997) Urban ecosystems: the human dimension. *Urban Ecosystems* **1**:63–75.

Reichard, S.H., & Hamilton, C.W. (1997) Predicting invasions of woody plants introduced into North America. *Conservation Biology* **11**:193–203.

Reiss, K.C. (2006) Florida wetland condition index for depressional forested wetlands. *Ecological Indicators* **6**: 337–52.

Relpf, E. (1997) Sense of place. In: Hansen, S., (ed) *Ten Geographic Ideas that Changed the World*, pp. 205–26. Rutgers University Press, New Brunswick.

Retzlaff, R.C. (2008). Planning for broad-based environmental protection: a look back at the Chicago Wilderness Biodiversity Action Plan. *Urban Ecosystems* **11**:45–63.

Richards, L.A. (1931) Capillary conduction of liquids through porous mediums. *Physics* **1:**318–33.

Richardson, D., James, P., & Kazmierczak, A. (2008) An ecological framework for Greater Manchester. Draft document. Association of Greater Manchester Authorities, Manchester. [online] http://www.wigan.gov.uk/Services/Planning/Policies/DevelopmentFramework/GreaterManchesterEcologicalFramework.htm [accessed 9 October 2009].

Ricketts, T., & Imhoff, M. (2003) Biodiversity, urban areas, and agriculture: Locating priority ecoregions for conservation. *Conserv. Ecol*. **8**: 1. [online] http://consecol.org./vol8/iss2/art1.

Ricotta, C., Godefroid, S., & Celesti-Grapow, L. (2008) Common species have lower taxonomic diversity – Evidence from the urban floras of Brussels and Rome. *Diversity and Distributions* **14**(3):530–37.

Ricotta, C., La Sorte, F.A., Pyšek, Rapson, G.L., Celesti-Gabow, L., & Thompson, K. (2009) Phyloecology of urban alien floras. *Journal of Ecology* **97**:1243–51.

Rigo, G., & Parlow, E. (2007) Modelling the ground heat flux of an urban area using remote sensing data. *Theoretical and Applied Climatology* **90**:185–99.

Rindfuss, R.R., Walsh, S.J.B. L.T. II, J. Fox, & W. Mishra. (2004) Developing a science of land change: challenges and methodological issues. *Proceedings of the National Academy of Science* **101**:13976–81.

Rindi, F. (2007) Diversity, distribution and ecology of green algae and cyanobacteria in urban habitats. In: *Algae and Cyanobacteria in Extreme Environments,* pp. 619–38. Springer, Dordrecht.

Rioux, L. (2005) The well-being of ageing people living in their own homes. *Journal of Environmental Psychology* **25**: 231–43.

Rishbeth, C. (2001) Ethnic minority groups and the design of public open space: an inclusive landscape? *Landscape Research* **26**:351–66.

Rishbeth, J. (1948) The flora of Cambridge walls, *J. Ecol* **36**: 136–48.

Robb, G.N., McDonald, R.A., Chamberlain, D.E., & Bearhop, S. (2008) Food for thought: supplementary feeding as a driver of ecological change in avian populations. *Frontiers in Ecology* **6**:476–84.

Roberts, D.G., Ayre, D.J., & Whelan, R.J. (2007) Urban plants as genetic reservoirs or threats to the integrity of bushland plant populations. *Conservation Biology* **21**: 842–52.

Roberts, N. (1998) *The Holocene: An Environmental History*. 2nd edn. Blackwell, Oxford.

Roberts, P. (2008) Sustainable communities – policy, practice and professional development: a model for Europe. In: I. Cooper and M. Symes (eds) *Sustainable Urban Development: Changing Professional Practice*. London, Routledge.

Roberts, P.R., Ravetz, J., & George, C. (2009) *Environment and the City: Critical Perspectives on the Urban Environment around the world*.Ro utledge, Abingdon.

Robine, J.M., Cheung, S.L., Le Roy, S., Van Oyen, H., & Herrmann, F.R. (2007) Report on excess mortality in Europe during summer 2003. 2003 Heat Wave Project. EU Community Action Programme for Public Health, Grant Agreement 2005114. [online] http://ec.europa.eu/health/ph_projects/2005/action1/docs/action1_2005_a2_15_en.pdf[accessed 11 February 2009].

Robinson, W.H. (1996) *Urban Entomology: Insect and Mite Pests in the Human Environment*. Chapman and Hall, London.

Robinson, W.S. (1950) Ecological correlations and the behavior of individuals. *American Sociological Review* **15**: 351–57.

Rodda, G.H., & Tyrrell, C.L. (2008) Introduced species that invade and species that thrive in town: are these two groups cut from the same cloth? In: J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds.), *Urban Herpetology*, pp. 327–41. Herpetological Conservation vol. 3, Society For the Study of Amphibians and Reptiles, Salt Lake City, UT.

Rohde, C.L.E., & Kendle, A.D. (1997) *Human Well-being, Natural Landscapes and Wildlife in Urban Areas: A Review*. English Nature Science No. 22. English Nature (now Natural England), Peterborough.

Rosch, M., Chown, S.L., & McGeoch, M.A. (2001) Testing a bioindicator assemblage: gall-inhabiting moths and urbanization. *African Entomology* **9**:85–94.

Rose, F. & O'Reilly, C. (2006) *The Wild Flower Key: How to Identify Wild Flowers, Trees and Shrubs in Britain and Ireland (*2nd Edn.). Frederick Warne, China.

Rosenzweig, M. (1995) *Species Diversity in Space and Time*. Cambridge University Press, Cambridge, England.

Rosenzweig, M.L. (2003) *Win-Win Ecology: How The Earth's Species Can Survive In The Midst of Human Enterprise*. Oxford University Press, Oxford.

Rotach, M.W., Vogt, R., Bernhofer, C., Batchvarova, E., Christen, A., Clappier, A., Feddersen, B., Gryning, S.-E., Martucci, G., Mayer, H., Mitev, V., Oke, T.R., Parlow, E., Richner, H., Roth, M., Roulet, Y.-A., Ruffieux, D., Salmond, J.A., Schatzmann, M., & Voogt, J.A. (2005) BUBBLE – an Urban Boundary Layer Meteorology Project. *Theoretical and Applied Climatology* **81:** 231–61.

Rötzer, T., Wittenzeller, M., Häckel, H., & Nekovar, J. (2000) Phenology in Central Europe – differences and trends of spring phenophases in urban and rural areas. *International Journal of Biometeorology* **44:**60–6.

Rowe, G., Beebee T.J., & Burke T. (2000) A microsatellite analysis of natterback toads, *Bufo calamita*. *Oikos* **88**: 641–51.

Rowell, D.L. (1994) *Soil Science: Methods and Application*. Longmans, Harlow.

Roy, D.B., Hill, M.O., & Rothery, P. (1999) Effects of urban land cover on the local species pool in Britain. *Ecography* **22**:507–15.

Rubbo, M.J., & Kiesecker, J.M. (2005) Amphibian breeding distribution in an urbanized landscape. *Conservation Biology* **19**:504–1 1.

Runge, M. (1975) *Westberliner Böden anthropogener Litho- oder Pedogenese*. Technical University Berlin, Berlin.

Russell, E.W.B. (1993) Discovery of the Subtle. In: M.J. McDonnell and S.T.A. Pickett (eds) *Humans as Components of Ecosystems: Subtle Human Effects and the Ecology of Populated Areas*. Springer-Verlag, New York.

Russell, E.W.B. (1997) *People and the Land through Time: Linking Ecology and History.* Yale University Press, New Haven.

Saarinen, K., Valtonen, A., Jantunen, J., & Saario, S. (2005) Butterflies and diurnal moths along road verges: does road type affect diversity and abundance. *Biological Conservation* **123**:403–12.

Sadler, J.P., Small, E.C., Fiszpan, H., Telfer, M.G., & Niemelä, J. (2006) Investigating environmental variation and landscape characteristics of an urban–rural gradient using woodland carabid assemblages. *Journal of Biogeography* **33**:1 126–38.

Sailor, D. & Lu, L. (2004) A top-down methodology for developing diurnal and seasonal anthropogenic heating profiles for urban areas. *Atmospheric Environment* **38**: 2737–48.

Sal'nikov, A., & Pilipenko, V. (2005) Anthropogenic transformation of flora in the city of Astrakhan and its environs over the past 100 years. *Russian Journal of Ecology* **36**(6):383–90.

Sala, O.E., Chapin, F.S.I., Armesto, **J.J**., Berlow, E., Bloomfield, J., Dirzo, R., Huber-Sanwald, E., Huenneke, L.F., Jackson, R.B., Kinzig, A., Leemans, R., Lodge, D.M., Mooney, H.A., Oesterheld, M., Poff, N.L., Sykes, M.T., Walker, B.H., Walker, M., & Wall, D.H. (2000) Global biodiversity scenarios for the year 2100. *Science* **287**: 1770–74.

Sanders, R.A. (1981) Diversity in the street trees of Syracuse, New York. *Urban Ecology* **5**:33–34.

Sandström, U.G. (2002) Green infrastructure planning in urban Sweden. *Planning Practice and Research* **17**(4): 373–85.

Sanzo, D., & Hecnar, S.J. (2006) Effects of road de-icing salt (NaCl) on larval wood frogs (*Rana sylvatica*). *Environmental Pollution* **140**:247–56.

Sarah, P., & Zhevelev, H.M. (2007) Effect of visitor's pressure on soil and vegetation in several different micro-environments in urban parks in Tel Aviv. *Landscape and Urban Planning* **83**:284–93.

Sassen, S. (1994) *Cities in a World Economy*. Thousand Oaks, CA, Pine Forge Press.

Sassen, S. (2001) Cities in the global economy. In: R. Paddison (ed) *Handbook of Urban Studies*, pp. 256–72. Sage Publications, London.

Satterthwaite, D. (2007) The transition to a predominantly urban world and its underpinnings. In *IIED Human Settlements Discussion Paper Series*, 91. London.

Sauerwein, M. (2002) Geoecological bases for the judgment of the anthropogenious soil change of the city area of Halle (Germany). *Hercynia N.F* **35**:1–15.

Sauerwein. M. (2006) Urban Soil Landscapes. Habilitation. Thesis. University of Halle. [online] http://sundoc.bibliothek.uni-halle.de/habil-online/05/08H116/index.htm [accessed 30 March 2009].

Savard, J-P., Clergeau, P., & Mennechez, G. (2000) Biodiversity concepts and urban ecosystems. *Landscape and Urban Planning* **48**(3–4):131–42.

Schaefer, C.A., & Larson, D.W. (1997) Vegetation, environmental characteristics and ideas on the maintenance of alvars on the Bruce Peninsula, Canada. *Journal of Vegetation Science* **8**:797–810.

Schäfer, M.A., Hille, A., & Uhl, G.B. (2001) Geographic patterns of genetic subdivision in the cellar spider *Pholcus phalangioides* (Araneae). *Heredity* **86**:94–102.

Schär, C., & Jendritzky, G. (2004) Hot news from summer 2003. *Nature* **432** December 2004: 559–60.

Scheffer, M., S. Carpenter, J.A. Foley, C. Folke, & B. Walker. (2001) Catastrophic Shifts in Ecosystems. *Nature* **413**(6856): 591–96.

Schleidt, W.M., & Shalter, M.D. (2003) Coevolution of humans and canids: an alternative view of dog domestication: Homo Homini Lupus? *Evolution and Cognition* **9**: 57–72.

Schlesinger, M.D, Manley, P.N., & Holyoak, M. (2008) Distinguishing stressors acting on land bird communities in an urbanizing environment. *Ecology* **89**:2302–14.

Schmid, J.A. (1994) Wetlands in the urban landscape of the United States. In: R.H. Platt, R.A. Rowntree & P.C. Muick (eds), *The Ecological City: Preserving and Restoring Urban Biodiversity,* pp. 106–33. The University of Massachusetts Press, Amherst.

Schnoor, J. (1996) *Environmental Modeling: Fate and Transport of Pollutants in Water, Air and Soil*. Wiley and Sons, New York.

Schöffel, I., Schein, E., Wittstadt, U., Hentsche, J. (1991) Zur Parasitenfauna des Rotfuchses in Berlin (West). Berl Munch Tierarztl Wochenschr. **104**(5):153–157.

Scholz, H. (1996) Ursprung und Evolution obligatorischer Unkräuter, *Schriften zu Genetischen Ressource,* **4**:109–29.

Schraps, W.G., Kersting, A., Pingel, P. *et al*. (2000) *Stoffbestand, Eigenschaften und räumliche Verbreitung urban-industrieller Böden: Ergebnisse aus dem Projekt Stadtbodenkartierung Oberhausen Brücktorviertel*. Scriptum, 7. GLA Nordrhein-Westfalen, Krefeld.

Schroeder, F.E.H. (1993) *Front Yard America: The Evolution of a Vernacular Domestic Landscape*. Bowling Green State University Press, Bowling Green, Ohio.

Schroeder, H.W., & Ruffolo, S.R. (1996) Householder evaluations of street trees in a Chicago suburb. *Journal of Arboriculture* **22**:35–43.

Schwartz, M.W., Thorne, J.H., & Viers, J.H. (2006) Biotic homogenization of the California flora in urban and urbanizing regions. *Biological Conservation* **127**:282–91.

Schwerdtfeger, G., (1997) Klassifizierung Anthropogener Böden. *Mitt. Dt. Bodenk., Ges*. **84**:61–4.

Schwerdtfeger, G., & Urban, B. (1997) Klassifizierung Anthropogener Böden. *Mitt. Dt. Bodenk. Ges*. **85**: 1247–50.

Schwerk, A. (2000) Ecological aspects of carabid beetle coenoses (Coleoptera: Carabidae) on industrial fallow grounds in the Ruhr Valley Area. In: P. Brandmayr *et al*. (eds) *Natural History and Applied Ecology of Carabid Beetles,* pp. 277–87. Pensoft Publishers. Moscow.

Scoones, I. (1999) New Ecology and the social sciences, what procepts for fruitful engagement? *Annual Review of Anthropology* **28**:479–507.

Scott, D.E., Metts, B.S., & Gibbons, J.W. (2008) Enhancing amphibian biodiversity on golf courses with seasonal wetlands. In: J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds.), *Urban Herpetology*, pp. 285–92. Herpetological Conservation Vol. 3, Society for the Study of Amphibians and Reptiles, Salt Lake City, UT.

Scott, R. (2003) Wildflower landscapes in the urban environment. In: J. Hitchmough, and K. Fieldhouse (eds) *Plant User Handbook*, pp. 178–95. Wiley, Chichester.

Searns, R.M. (1995) The evolution of greenways as an adaptive urban landscape form. In: J.G. Fabos and A. Jack (eds), *Greenways: The Beginning of an International Movement*, pp. 65–79. Elsevier, New York.

Seaward, M.R.D. (1979) Lower plants and the urban landscape, *Urban Ecology* **4**:217–25.

Segal, S. (1969) *Ecological Notes on Wall Vegetation*. W. Junk, The Hague.

Semeniuk, C. (2007) *The Becher Wetlands – A Ramsar site*. Springer, Dordrecht.

Semlitsch, R.D., & J.R. Bodie. (2003) Biological criteria for buffer zones around wetlands and riparian habitats for amphibians and reptiles. *Conservation Biology* **17**: 1219–28.

Shafer, C.S., Lee, B.K., & Turner, S. (2000) A tale of three greenway trails: user perceptions related to quality of life. *Landscape and Urban Planning* **49**:163–78.

Sharma, S., & Amritphale, D. (2007) Effect of urbanization on the population density of aak weevil. *Current Science* **93**:1 130–34.

Shaw, L.M., Chamberlain, D., & Evans, M. (2008) The house sparrow *Passer domesticus* in urban areas: reviewing a possible link between post-decline distributions and human socioeconomic status. *Journal of Ornithology* **149**:293–99.

Shaw, P., & Reeve, N. (2008) Influence of a parking area on soils and vegetation in an urban nature reserve. *Urban Ecosystems,* **11**:107–20.

Shepherd, G. (2004) *The Ecosystem Approach: Five Steps to Implementation*. IUCN, Gland, Switzerland and Cambridge, UK.

Shipp, D. (2000) *Urban Wildlife Spotter's Guide*. Usborne Publishing, London.

Shire, G.G., Brown, K., & Winegrad, G. (2000) *Communication Towers: A Deadly Hazard to Birds*. American Bird Conservancy, Washington, DC.

Shmida, A., & Ellner, S. (1984) Coexistence of plant species with similar niches. *Vegetatio* **58**:29–55.

Shochat, E., Anderies, J.M., Lerman, S.B., Warren, P.S., Faeth S., & Nilon, C. (2010) Invasion, species interactions, and biodiversity loss in urban ecosystems. *BioScience* **60**(3):199–208.

Shochat, E., Warren, P.S., Faeth, S.H., McIntyre, N.E., & Hope, D. (2006) From Patterns to Emerging Processes in Mechanistic Urban Ecology. *Trends in Ecology and Evolution* **21**:186–91.

Shrewsbury, P.M., & Raupp, M.J. (2006) Do top-down or bottom-up forces determine *Stephanitis pyrioides* abundance in urban landscapes? *Ecological Applications* **16**: 262–72.

Shuttleworth, W.J. (1992) Evaporation. In: D.R. Maidment (ed) *Handbook of Hydrology*, pp. 4.1–4.52. McGraw-Hill, New York.

Siebert, S.J. (2009) *Livistona chinensis*, a semi-naturalized palm of swamp forest in subtropical South Africa. *Palms* **53**(4):193–96.

Sieker, F., Kaiser, M., & Sieker, H. (2006) Urban stormwater management issues for private, commercial and municipal properties (in German: Dezentrale Regenwasserbewirts-chaftung im privaten, gewerblichen und kommunalen Bereich), Fraunhofer IRB Verlag, Stuttgart.

Siem, H.-K. (2002) Boden der Stadt Kiel und Eckernförde und das Problem der Klassenbildung und Klassenzuweisung von Bodenausgangsmaterial und Bodenentwick lungsstadien. *Mitt. Dt. Bodenk. Ges*. **99**: 19–20.

Siex, K.S., & Struhsaker, T.T. (1999) Colobus moneys and coconuts: a study of perceived human-wildlife conflicts. *Journal of Applied Ecology* **36**:1009–20.

Silliman, B.R., & Bertness, M.D. (2004) Shoreline development drives invasion of *Phragmites australis* and the loss of plant diversity on New England salt marshes. *Conservation Biology* **18**(5):1424–34.

Simberloff, D., (1982) A succession of paradigms in ecology. essentialism to materialism and probabilism. In E. Saarinen (ed), *Conceptual Issues in Ecology.* Reidel (Kluwer), Boston.

Simberloff, D., & Cox, J. (1987) Consequences and costs of conservation corridors. *Conservation Biology* **1**:63–71.

Simms, A.(2009) *The New Economics*. Earthscan, London.

Simon, J.A., Snodgrass, J.W., Casey R.E., & Sparling, D.W. (2009) Spatial correlates of amphibian use of constructed wetlands in an urban landscape. *Landscape Ecology* **24**: 361–73.

Sinervo, B., Méndez-de-la-Cruz, F., Miles, D.B., Heulin, B., Bastiaans, E., Villagrán-Santa Cruz, M., Lara-Resendiz, R., Martínez-Méndez, N., Calderón-Espinosa, M.L., Meza-Lázaro, R.N., Gadsden, H., Avila, L.J., M. Morando, I.J. De la Riva, P. Victoriano Sepulveda, C.F. Duarte Rocha, N.I. Ibargüengoytía, C. Aguilar Puntriano, M. Massot, V. Lepetz, T.A. Oksanen, D.G. Chapple, A.M. Bauer, W.R. Branch, J. Clobert, & J.W. Sites, Jr. (2010) Erosion of lizard diversity by climate change and altered thermal niches. *Science* **328**:894–99.

Singh, S.D. (1968) Social interactions between rural and urban monkeys. *Primates* **9**:69–74.

Skidds, D.E., Golet, F.C., Paton, P.W.C., & Mitchell, J.C. (2007). Habitat correlates of reproductive effort in Wood Frogs and Spotted Salamanders in an urbanizing watershed. *Journal of Herpetology* **41**:439–50.

Slabbekoorn, H., & Smith, T.B. (2002). Bird song, ecology and speciation. *Philosophical Transactions of the Royal Society of London, Series B* **357**:493–503.

Slabbekoorn, H., & den Boer-Visser, A. (2006) Cities change the song of birds. *Current Biology* **16**:2326–3 1.

Small, E.C., Sadler, J.P., & Telfer, M.G. (2003) Carabid beetle assemblages on urban derelict sites in Birmingham, UK. *Journal of Insect Conservation* **6**:233–46.

Small, E., Sadler, J.P., & Telfer, M. (2006) Do landscape factors affect brownfield carabid assemblages? *Science of the Total Environment* **360**:205–22.

Smallwood, K.S., & Thelander, C.G. (2008) Bird mortality in the Altlamont Pass Wind Resource Area, California. *Journal of Wildlife Management* **72**:215–23.

Smart, J., Gill, J.A., Sutherland, W.J., & Watkinson, A.R. (2006) Grassland-breeding waders: identifying key habitat requirements for management. *J. Appl. Ecol.* **43**: 454–63.

Smith, A.J. (2008) *Birds in Greater Manchester, 32nd report* The Greater Manchester Bird Recording Group, Manchester.

Smith, R.M., Thompson, K., Hodgson, J.G., Warren, P.H., & Gaston, K.J. (2006) Urban domestic gardens (IX): Composition and richness of the vascular plant flora, and implications for native biodiversity. *Biological Conservation* **129**:312–22.

Smith, R.M., Warren, P.H., Thompson, K., & Gaston, K.J. (2006) Urban domestic gardens (VI): environmental correlates of invertebrate species richness. *Biodiversity and Conservation* **15**:2415–38.

Snodgrass, J.W., Casey, R.E., Simon, J.A., & Gangapura, K. (2008). Ecotoxicology of amphibians and reptiles in urban environments: an overview of potential exposure routes and bioaccumulation. In: J.C. Mitchell, R.E. Jung Brown, and B. Bartholomew (eds.), *Urban Herpetology*, pp. 177–96. Herpetological Conservation Vol. 3, Society for the Study of Amphibians and Reptiles, Salt Lake City, UT.

Soil Survey Staff (ed) (1999) *Soil Taxonomy*. Agricultural Handbook No. 436. U.S. Department of Agriculture, Washington, DC.

Soja, E. (2000) *Postmetropolis: Critical Studies of Cities and Regions.* Blackwell, Malden, MA, Oxford, UK.

Somerville, E.M. (1999) Some aspects of the palaeoecology of commensals. *Quaternary Proceedings* **7**:605–13.

Sommer, R.O., & Summit, J. (2000) Public involvement with elms and other species. In: C.P. Dunn, (ed.) *The Elms: Breeding, Conservation, and Disease Management*, pp. 317–30. Kluwer Academic Publishers, Boston.

Song, Y., & G. Knapp. (2003) New urbanism and housing values: a disaggregate assessment. *Journal of Urban Economics* **54**:218–38.

Song, Y-C., & Gao, J. (2008) Urban ecology studies in China, with an emphasis on Shanghi. In: M. Carreiro, Y-C. Song & J. Wu (eds) *Ecology, Planning, and Management of Urban Forests*. Springer, New York.

Sörensson, M. (2008) AHA – en enkel metod för prioritering av vedentomologiska naturvärden hos träd i sydsvenska park- och kulturmiljöer. (AHA – a simple method for evaluating conservation priorities of trees in South Swedish parks and urban areas from an entomo-saproxylic viewpoint.) *Entomologisk Tidskrift* **129**: 81–90.

Sörme, L., Bergbäck, B., & Lohm, U. (2001) Century perspective of heavy metal use in urban areas. A case study in Stockholm. *Water, Air and Soil Pollution* **1**(3): 197–211.

Soule, M.E. (1990) The onslaught of alien species, and other challenges in the coming decades. Conservation Biology **4**:233–239.

Spalding, A., & Haes, E.C.M. (1995) Contaminated land - a resource for wildlife: a review and survey of insects on

metalliferous mine sites in Cornwall. *Land Contamination & Reclamation* **3**:24–29.

Sparling, D.W., Linder, G., & Bishop, C.A. (eds.). (2000) *Ecotoxicology of Amphibians and Reptiles*. Society for Environmental Toxicology and Chemistry, Pensacola, FL.

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

Stanvliet, R., Jackson, J., Davis, G., De Swardt, C., Mokhoele, J., Thom, Q., & Lane, B.D. (2004). The UNESCO Biosphere Reserve concept as a tool for urban sustainability: The CUBES Cape Town case study. In: C. Alfsen-Norodom, B.D. Lane, and M. Corry (eds) *Urban Biosphere and Society: Partnership of Cities*, pp. 80–104. Ann. N.Y. Acad. Sci. 1023; New York.

Stasch, D., & Stahr, K. (2002) Steine und Skelettgehalte als Merkmal von Stadtböden. *Mitt. Dt. Bodenk. Ges*. **99**: 21–2.

Stearns, F., & Montag, T. (eds). (1974) *The Urban Ecosystem: A Holistic Approach.* Dowden, Hutchinson and Ross Inc., Stroudsburg.

Stedman, R.C. (2002) Toward a social psychology of place: predicting behavior from place-based cognitations, attitudes, and identity. *Environment and Behavior* **34**: 561–81.

Stedman, R.C. (2003) Is it really just about social construction? The contribution of the physical environment to sense of place. *Society of Natural Resources* **16**:671–85.

Steiner, D., & Nauser, M. (eds). (1993) *Human Ecology: Fragments of Anti-Fragmentary Views of the World.* Routledge, London.

Steinitz, C., Rojo, H.M.A., Bassett, S., Flaxman, M., Goode, T., Maddock, T. III, Mouat, D., Peiser, R., & Shearer, A. (2002) *Alternative Futures for Changing Landscapes*. Island Press, Washington, DC.

Stern, N. (2007) *The Economics of Climate Change: The Stern Review*. Cambridge University Press, Cambridge.

Stewart, G., Ignatieva, M., Meurk, C., Buckley, H., Horne, B., & Braddick, T. (2009) Urban Biotopes of Aotearoa New Zealand (URBANZ) (I): composition and diversity of temperate urban lawns in Christchurch. *Urban Ecosystems* **12**(3):233–48.

Stewart, G.H., Ignatieva, M.E., Meurk, C.D., & Earl, R.D. (2004) The re-emergence of indigenous forest in an urban environment, Christchurch, New Zealand. *Urban Forestry and Urban Greening* **2**: 149–58.

Stiglitz, J. (2002) *Globalization and its Discontents*. Penguin, London.

Stinson, K.A., Campbell, S.A., Powell, J.R., Wolfe, B.E., Callaway, R.M., Thelen, G.C., *et al*. (2006) Invasive plant suppresses the growth of native tree seedlings by disrupting belowground mutualisms. *PLoS Biology* **4**: 727–31.

Stone, B., Mednick, A.C., Holloway, T, & Spak, S.N. (2007) Is compact growth good for air quality? *Journal of American Planning Association* **73**:404–18.

Stones, R. (2005) *Structuration Theory*. Palgrave Macmillan, New York.

Storch, D., Marquet, P., & Brown, J., (eds) (2007) *Scaling Biodiversity*. Cambridge University Press, New York, USA.

Storm, D.J., Nielsen C.K., & Schauber, E.M. (2007) Space use and survival of white-tailed deer in an exurban landscape. *Journal of Wildlife Management* **71**:1 170–76.

Stott, P.A., Stone, D.A., & Allen, M.R. (2004) Human contribution to the European heatwave of 2003. *Nature* **432**:610–4.

Strauss, B., & Biedermann, R. (2008) Fit for succession – community structure and life strategies of leafhoppers in urban brownfields. *Ecological Entomology* **33**:107–18.

Stull, R. (1995) *Meteorology Today for Scientists and Engineers*. West Publishing Company, Minneapolis/St. Paul – New York – Los Angeles – San Francisco.

Sugg, D.W., Bickham, J.W, Brooks, J.A, Lomakin, M.D., Jagoe, C.H., Dallas, C.E., Smith, M.H., Baker, R.J., &. Chesser, R.K. (1996) DNA damage and radiocesium in channel catfish from Chernobyl. *Environmental Toxicology and Chemistry* **15**:1057–63.

Sukopp, H. (1973) *The City as a Subject for Ecological Research*. Society for the Dissemination of Knowledge, Vienna.

Sukopp, H., Blume, H., & Kunick, W. (1979) The soil, flora, and vegetation of Berlin's waste lands, In: Laurie, I.C., (ed.) *Nature in Cities,* pp. 115–34. John Wiley & Sons, New York.

Sukopp, H., Kunick, W., & Schneider, C. (1980) Biotopkartierung im besiedelten Bereich von Berlin (West): Teil II: Zur Methodik von Geländearbeit. *Garten und Landschaft* **7**:565–9.

Sukopp, H., & Weiler, S. (1988) Biotope mapping and nature conservation strategies in urban areas of the Federal Republic of Germany. *Landscape and Urban Planning* **15**:39–58.

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

Sukopp, H., Wittig, R., & Klausnitzer, B. (1993) Die ökologische Gliederung der Stadt. In: H. Sukopp and R. Wittig, R. (eds), *Stadtökologie,* pp. 271–318. G. Fischer Verlag, Stuttgart.

Sukopp, H., Numata, M., & Huber, A. (1995) *Urban Ecology as the Basis of Urban Planning.* SPB Academic Publishing, Amsterdam.

Sukopp, H. (1998) Urban ecology: scientific and practical aspects. In: J. Breuste, H. Feldmann and O. Uhlmann (eds) *Urban Ecology*. Springer-Verlag, Berlin.

Sukopp, H., & Wittig, R. (1998) *Stadtökologie. Ein Fachbuch für Studium und Praxis*. Fischer Verlag, Stuttgart.

Sukopp, H. (2002) On the early history of urban ecology in Europe. *Preslia* **74**:373–93.

Sukopp, H., & Wurzel, A. (2003) The effects of climate change on the vegetation of central European cities. *Urban Habitats* **1**:66–86.

Sukopp, H. (2008) On the early history of urban ecology in Europe. In: Marzluff, J.M., Shulenberger, E., Endlicher, W., Alberti, M., Bradley, G., Ryan, C., ZumBrunnen, C., & Simon, U., (eds) *Urban Ecology*. *An International Perspective on the Interaction Between Humans and Nature*, pp. 79–97. Springer Science and Business Media, New York.

Sullivan, J.J., Timmins, S.M., & Williams, P.A. (2005) Movement of exotic plants into coastal native forests from gardens in northern New Zealand. *New Zealand Journal of Ecology* **29**:1–10.

SURE (2010) *Society for Urban Ecology*. [online] http://www.society-urban-ecology.org/.

Sustainable Development Commission, (2008) *Health, Place and Nature*. Sustainable Development Commission, London.

Šustek, Z. (1987) Changes in body size structure of carabid communities (Coleoptera, Carabidae) along an urbanisation gradient. *Biologia (Bratislava)* **42**:145–56.

Sutherland, W.J., & Hill, D.A. (1995) *Managing Habitats for Conservation*. Cambridge University Press, Cambridge.

Svotwa, E., Ngwenya, J., Manyanhaire, O.T, & Jiyane, J. (2007) Residents' perceptions of human/wildlife conflicts in Kariba urban. *Journal of Sustainable Development in Africa* **9**:178–91.

Symondson, W.O.C., Sunderland, K.D., & Greenstone, M.H. (2003) Can generalist predators be effective biocontrol agents? *Annual Review of Entomology* **47**:561–94.

Tait, M. (2006) *Wildlife Gardening for Everyone*. Think Publishing Limited, London.

Takahashi, T., Amano, Y., Kuchimura, K., & Kobayashi, T. (2008) Carbon content of soil in urban parks in Tokyo, Japan. Landscape and Ecological Engineering 4: 139–142.

Takano, T. Nakamura, K., & Watanabe, M. (2002) Urban residential environments and senior citizens' longevity in mega-city areas: the importance of walkable green space. *Journal of Epidemiology and Community Health* **56**: 913–16.

Tallamy, D.W. (2009) *Bringing Nature Home*. Timber Press.

Tan, K.H. (1994) *Environmental Soil Science*. Oxford University Press, New York.

Tarsitano, E. (2006) Interaction between environment and animals in urban settings: Integrated and participatory planning. *Environmental Management* **38**:799–809.

Taylor, D.R., Aarssen, L.W., & Loehle, C. (1990) On the relationship between r/K selection and environmental carrying capacity: a new habitat templet for plant life history strategies, *Oikos* **58**:239–50.

TCPA (Town & Country Planning Association) (2004) *Biodiversity by Design – A Guide for Sustainable Communities*. Town and Country Planning Association, London. [online] http://www.tcpa.org.uk/data/files/bd_biodiversity.pdf [accessed 17 October 2010].

TEEB (2010) *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB*. New York, UN Environment Programme.

Temby, I.D. (2004) Urban wildlife issues in Australia. In: W.W. Shaw, L.K. Harris, and L. VanDruff *Proceedings of the 4th International Symposium on Urban Wildlife Conservation*1–5 May 1999, pp 26–34. Tucson, AZ.

TEP (The Environment Partnership) (2008) Towards a green infrastructure framework for Greater Manchester. [online] http://www.greeninfrastructurenw.co.uk/html/index.php?page=resources&SubRegion/CityRegion=true [accessed 17 October 2010].

TEP Consultants with Natural England, (2008) *Towards a Green Infrastructure Framework for Greater Manchester*. Association of Greater Manchester Authorities Oldham, UK.

The Australian (2007) *$1bn runway for Brisbane airport*. Published in *The Australian* newspaper, 18 September, 2007. [online]: http://www.theaustralian.news.com.au/story/0,25197,22439153–2702,00.html.

The Trust for Public Land & Philadelphia Parks Alliance (2008) *How Much Value Does the City of Philadelphia Receive from its Park and Recreation System?* The Trust for Public Land, Washington & Philadelphia Parks Alliance, Philadelphia. [online] http://salsa.democracyinaction.org/o/372/images/PhilaParkValueReport08.pdf [accessed 17 October 2010].

Theobald, D.M. (2004) Placing ex-urban land-use change in a human modification framework. *Frontiers in Ecology and Environment* **2**:139–44.

Thomas, W.L., Jr, (ed) (1956) *Man's Role in Changing the Face of the Earth*. University of Chicago Press, Chicago.

Thompson, K., Austin, K.C., Smith, R.M., Warren, P.H., Angold, P.G., & Gaston, K.J. (2003) Urban domestic gardens (I): Putting small-scale plant diversity in context. *J. Veg. Sci*. **14**:71–78.

Thompson, K., Hodgson, J.G., Smith, R.M., Warren, P.H., & Gaston, K.J. (2004) Urban domestic gardens (III): composition and diversity of lawn floras. *Journal of Vegetation Science* **15**:373–78.

Thornton, G., & Nathanail, P. (2005) Are incentives for regenerating UK brownfield sites sustainable? *Land Contamination & Reclamation* **13**:327–38.

Thuy, H.T.T., Tobschall, H.J., & An, P.V. (2000) Distribution of heavy metals in urban soils - a case study of Danang-Hoian Area (Vietnam). *Environmental Geology* **39**(6): 0603–10.

Tietböhl, P., Kretschmer, H., & Mulsow, R. (1997) Auswertung von Bohrungen in der Altstadt von Rostock. *Mitt. Dt. Bodenk. Ges*. **84**:171–4.

Tilman, D., May R.M., Lehman C., & Nowak M. (1994) Habitat destruction and the extinction debt. *Nature* **371**: 65–66.

Tjallingii, S. (2000) Ecology o thee: landscape and policy between town and country. *Landscape and Urban Planning* **48**(3–4):103–19.

Tjallingii, S. (2005) Green structure and urban planning, general outcomes of Cost C11. In: A. Werquin, B. Duhem, G. Lindholm, B. Oppermann, S. Pauleit, and S. Tjallingii (eds) *Green Structure and Urban Planning. Final report of Cost Action C11,* pp. 15–37. Office for Official Publications of the European Communities, Luxembourg.

Toffler, A. (1980) *The Third Wave*. New York: Bantam Books.

Tratalos, J., Fuller, R.A., Warren, P.H., Davies, R.G., & Gaston, K.J. (2007) Urban form, biodiversity potential and ecosystem services. *Landscape and Urban Planning* **83**: 308–17.

Tratalos, J., Fuller, R.A., Warren, P.H., Davies, R.G., Newson, S.E., Greenwood, J.J.D., & Gaston, K.J. (2007) Bird densities are associated with household densities. *Global change Biology* **13**:1685–95.

Trocha, L.K., Oleksyn, J., Turzanska, E., Rudawska, M., & Reich, P.B. (2007) Living on the edge: Ecology of an incipient Betula-fungal community growing on brick walls, *Trees-Structure and Function* **21**:239–47.

Troy, A.R., Grove, J.M., O'Neil-Dunne, J.P.M., Pickett, S.T.A., & Cadenasso, M.L., (2007) Predicting opportunities for greening and patterns of vegetation on private urban lands. *Environmental Management* **40**:394–412.

Tu, K.J., & Lin, L.T. (2008) Evaluative structure of perceived residential environment quality in high-density and mixed-use urban settings: An exploratory study on Taipei City. *Landscape and Urban Planning* **87**:157–71.

Turner T. (1998) *Landscape Planning and Environmental Impact Design*. UCL Press, London.

Turner W.R., Nakamura,T., & Dinetti, M. (2004) Global urbanization and the separation of humans from nature. *BioScience* **54**:585–90.

Turner, B.L., & Meyer, W.B. (1993) Environmental change: The human factor. In: M.J. McDonnell and S.T.A. Pickett (eds) *Humans as Components of Ecosystems: Subtle Human Effects and the Ecology of Populated Areas.* Springer-Verlag, New York.

Turner, B.L., Clark, W.C., Kates, R.W., Richards, J.F., Matthews, J.T., & Meyer, W.B. (eds) (1990) *The Earth as Transformed by Human Action: Global and Regional Changes in the Biosphere over the Past 300 Years*. Cambridge University Press, New York.

Tyldesley, D. (1994) *Planning for Wildlife in Towns and Cities*. Peterborough, UK: English Nature.

Tyrväinen, L. (1997) The amenity value of the urban forest: An application of the hedonic pricing method. *Landscape and Urban Planning* **37**(3–4):21 1–22.

Tyrväinen, L., Pauleit, S., Seeland, K., & de Vries, S. (2005) Benefits and uses of urban forests and trees: A European perspective. In: C.C. Konijnendijk, K. Nilsson, T.B. Randrup, J. Schipperijn (eds). *Urban Forests and Trees in Europe – A Reference Book,* pp. 81–114. Springer-Verlag, Berlin.

Tyrväinen, L., Silvennoinen, H., & Kolehmainen, O. (2003) Ecological and Aesthetic Values in Urban Forest Management. *Urban Forestry and Urban Greening,* **1**: 135–49.

Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kazmierczak, A., Niemelä, J., & James, P. (2007) Promoting ecosystem and human health in urban areas using Green Infrastructure: A literature review. *Landscape and Urban Planning* **81**(3):167–78.

UK Government (2007) *PSA Delivery Agreement 28: Secure a Healthy Natural Environment for Today and the Future*. HM Government, London. [online] http://www.hm-treasury.gov.uk/pbr_csr07_psaenvironment.htm [accessed 17 October 2010].

Ulrich, R.S. (1984) View through a window may influence recovery from surgery. *Science* **224**:420–21.

Ulrich, R.S. (1995) Biophilia, biophobia and natural landscapes. In: S.R. Kellert, and E.O. Wilson (eds) *The Biophilia Hypothesis*, pp. 73–137. Island Press, Washington, DC.

Ulrich, R.S. (1997) Pre-symposium workshop: a theory of supportive design for health care facilities. *Journal of Health Care Design* **9**:3–7.

Ulrich, R.S., & Parsons, R. (1992) Influences of passive experiences with plants on individual well-being and health. In: D. Relf (ed) *The Role of Horticulture in Human Well-being and Social Development,* pp. 93–105. Timber Press, Portland, Oregon

Ulrich, W., Komosinski, K., & Zalewski, M. (2008) Body size and biomassa distributions of carrion visiting beetles: do cities host smaller species? *Ecological Research* **23**: 241–48.

UN (2009) [online] http://www.un.org/millenniumgoals/.

Underwood, E.C., Viers, J.H., Klausmeyer, K.R., Cox, R.L., & Shaw, M.R. (2009) Threats and biodiversity in the

Mediterranean biome. *Diversity and Distribution* **15**(2): 188–97.

UNEP (2008) Cities, local authorities and biodiversity: Draft decision submitted by the Chair of Working Group II UNEP/CBD/COP/9/L.17 28 May 2008.

UNESCO (1996) *Biosphere Reserves: The Seville Strategy and the Statutory Framework of the World Network*. UNESCO, Paris.

UNESCO (2009a) [online] http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?mode=all&code=ARG+08.

UNESCO (2009b) [online] http://whc.unesco.org/en/list/394/.

UNESCO (2009c) [online] http://www.unesco.org/water/ihp/ecohydrology/.

UNFPA (2007) *State of the World Population 2007: Unleashing the Potential Urban Growth*. United Nations Population Fund, New York.

UN-Habitat (2004): *State of the World's Cities 2004/2005: Globalization and Urban Change*. Nairobi, UNCHS/London, Earthscan.

UN-HABITAT. (2006) *State of the World's Cities*. United Nations Human Settlements Programme, New York.

United Nations (2006) *World Urbanization Prospects: The 2005 Revision*. Population Division, Department of Economic and Social Affairs, United Nations, New York.

United Nations. (2008) *2005 Demographic Yearbook*. United Nations Publication. New York.

United Nations Development Program (UNDP) (2007) United Nations human development report 2007/2008. *Fighting Climate Change: Human Solidarity in a Divided World*. UNDP, New York.

USDA United States Department of Agriculture (2003) Management of feral and free-ranging cat populations to reduce threats to human health and safety and impacts to native wildlife species in the commonwealth of Puerto Rico.

University of Washington. (2009) Green futures research and design lab. 'Envisioning Seattle's green future. [online] http://greenfutures.washington.edu/proos2100.php. [accessed 18 October 2009].

UNPD (2007) *World Urbanization Prospects: The 2007 Revision*. United Nations Population Division, New York.

UNU/IAS (2003) *Defining an Ecosystem Approach to Urban Management and Policy Development*. United Nations University Institute of Advanced Studies. Tokyo, Japan.

Urban, M.C. (2004) Disturbance heterogeneity determines freshwater metacommunity structure. *Ecology* **85**: 2971–78.

Vallet, J., Daniel, H., Beaujouan, V., & Rozé, F. (2008) Plant species response to urbanization: comparison of isolated woodland patches in two cities of North-Western France. *Landscape Ecology* **23**:1205–17.

van Andel, T.H., Zangger, E., & Demitrack, A. (1990) Land-use and soil erosion in prehistoric and historical Greece. *Journal of Field Archaeology* **17**:379–96.

Van der Veken, Verheyen, K., & Hermy, M. (2004) Plant species loss in an urban area (Turnhout, Belgium) from 1880 to 1999 and its environmental determinants. *Flora* **199**:516–23.

van Egmond, P.M., & Vonk, M. (eds) (2004) *Nature Balance 2007: Summary*. Netherlands Environmental Assessment Agency, Bilthoven. [online] http://www.mnp.nl/en/publications/2007/Nature_balance_2007.html (accessed 17 October 2010)

van Genuchten, M.T. (1980) A closed form equation for predicting the hydraulic conductivity of unsaturated soils. *Soil Science Society of America Journal* **44**:892–8.

Varshney, C.K. (1971) Observations on the Varanasi wall flora. *Plant Ecology* **22**:355–72.

Venn, S.J., Kotze, D.J., & Niemelä, J. (2003) Urbanization effects on carabid diversity in boreal forests. *European Journal of Entomology* **100**:73–80.

Verein Deutscher Ingenieure VDI (1998) Umweltmeteorologie – Methoden zur humanbiometeorologischen Bewertung von Klima und Lufthygiene für die Stadt- und Regionalplanung. Teil I: Klima. *VDI-Richtlinien 3787, Blatt 2, VDI/DIN-Handbuch Reinhaltung der Luft, Band 1b*. Berlin, Beuth-Verlag.

Vessel, M.F., & Wong, H.H. (1987) *Natural History of Vacant Lots*. University of California Press, Berkeley.

Viani, L.O. (2007) Seattle's green pipes. *Landscape Architecture* **10**:100–1 1.

Vigallon, S. & Marzluff. J.M. (2005) Abundance, nest sites, and nesting success of Steller's Jays along a gradient of urbanization in western Washington. *Northwest Science* **79**:22–27.

Vignoli, L., Mocaer I., Luiselli L., & Bologna M.A. (2009) Can a large metropolis sustain complex herpetofauna communities? An analysis of the suitability of green space fragments in Rome. *Animal Conservation* **12**: 456–66.

Vitousek, P.M., Mooney, H.A., Lubchenco, J., & Melillo J.M. (1997) Human Domination of Earth's Ecosystems. *Science* **227**:494–9.

Vitousek, Peter, M., *et al*. (2004) Soils, Agriculture, and Society in Precontact Hawai'i. *Science* **304** (5677): 1665–69.

Voeks, R. (1997) *Sacred Leaves of Candomblé- African Magic, Medicine and Religion in Brazil*. University of Texas Press, Austin.

Vogel, M. (2006) Moving towards high performance infrastructure. *Urban Land* **Oct 2006**:73–79.

Vogt, R., Christen, A., Rotach, M.W., Roth, M., and Satyanarayana, A.N.V. (2006) Temporal dynamics of CO_2 fluxes and profiles over a Central European city. *Theoretical and Applied Climatology* **84**:1 17–26.

von der Lippe, M., & Kowarik, I. (2007) Long-distance dispersal of plants by vehicles as a driver of plant invasions. *Conservation Biology* **21**:986–96.

von der Lippe, M., & Kowarik, I. (2008) Do cities export biodiversity? Traffic as dispersal vector across urban-rural gradients. *Diversity and Distributions* **14**:18–25.

Wackernagel, M., & W. Rees. (1996) *Our Ecological Footprint*. Gabriola Island, Canada: New Society Publishers.

Wagner,I., Marsalek, J., & Brei, P. (eds) (2008) *Aquatic Habitats in Sustainable Urban Water Management: Science, Policy and Practice.* Urban Water Series. UNESCO-IHP, Paris.

Waltner-Toews, D., Kay, J.J., & Lister, N-M. (eds) (2009) *The Ecosystem Approach: Complexity, Uncertainty, and Managing for Sustainability.* Columbia University Press, New York.

Wang, G.M., Jiang, G.M., Zhou, Y.L., Liu, Q.R., Ji, Y.S., Wang, S.X., *et al*. (2007). Biodiversity conservation in a fast-growing metropolitan area in China: a case study of plant diversity in Beijing. *Biodiversity and Conservation* **16**(14):4025–38.

Wang, H., & Ellis, E.C. (2005) Image misregistration error in change measurements. *Photogrammetric Engineering and Remote Sensing* **71**:1037–44.

Ware, G.H. (1994) Ecological bases for selecting urban trees. *Journal of Arboriculture* **20**:98–103.

Washington, T. (1978) Wildlife and urban connection. *Colorado Outdoors* **27**:38–42.

Weart, S.R. (2003) *The Discovery of Global Warming*. Harvard University Press, Cambridge, Mass.

Webber, M.M. (1964) The urban place and the non-place urban realm. In M.M. Webber *et al*. (eds) *Explorations into Urban Structure*. University of Pennsylvania Press, Philadelphia.

Weinstein, A., & Karschon, R. (1977) The flora of walls in Israel. *Agricultural Research Organization Forestry Division Leaflet* **60**:1–10.

Weller, B., & Ganzhorn, J.U. (2004) Carabid beetle community composition, body size, and fluctuating asymmetry along an urban-rural gradient. *Basic and Applied Ecology* **5**:193–201.

Wells, N.M. (2000) At home with nature: Effects of 'greenness' on children's cognitive functioning. *Environment and Behaviour* **32**:775–95.

Welsh Assembly Governnment (2006) *Environment Strategy for Wales*, pp. 41–43. Cardiff: Welsh Assembly Government, Cardiff. [online] http://wales.gov.uk/topics/environmentcountryside/epq/envstratforwales/?lang=en [accessed 17 October 2010].

Welsh Assembly Government (2009) *Planning Policy Wales Technical Advice Note 16: Sport, Recreation and Open Space.* Welsh Assembly Government, Cardiff. [online] http://wales.gov.uk/topics/planning/policy/tans/tan16e/?lang=en [accessed 17 October 2010].

Werner E.E., K.L. Yurewicz, D.K. Skelly, & Relyea R.A. (2007) Turnover in an amphibian metacommunity: the role of local and regional factors. *Oikos* **116**:1713–25.

Werner, W., Gödde, M., & Grimbach, N. (1989) Vegetation der Mauerfugen am Niederrhein und ihre Standortverhältnisse. *Tuexenia* **9**:57–73.

Wessolek, G. (2001) Bodenüberformung und –versiegelung. In: H.P. Blume, P. Felix-Henningsen, W.R. Fischer *et al*. (eds) *Handbuch der Bodenkunde*, ch 6.1.Wiley and Sons, New York.

Wessolek, M., & Renger, M. (1998) Bodenwasser- und Grundwasserhaushalt. In: Sukopp, H. & R. Wittig (eds) *Stadtökologie,* pp. 186–200.Fischer, Stuttgart.

West Midlands County Council (1984) *The Nature Conservation Strategy for the County of the West Midlands*. West Midlands County Council, Birmingham.

Westley, F., Carpenter S.R., Brock W.A., Holling C.S., & Gunderson L.H. (2002) Why systems of people and nature are not just social and ecological systems. In: L.H. Gunderson and C.S. Holling, (eds) *Panarchy Understanding Transformations in Human and Natural Systems*, pp. 103–19. Island Press, Washington, DC.

Westmacott, R. (2002) *African-American Gardens and Yards in the Rural South*. University of Tennessee Press, Knoxville.

Westphal, L.M. (2003) Urban greening and social benefits: a study of empowerment outcomes. *Journal of Arboriculture* **29**(3):137–47.

Wetterer, J.K. (1999) Urban ecology. In D.E. Alexander and R.W. Fairbridge, (eds) *Encyclopedia of Environmental Sciences*, pp. 644–47. Springer, New York.

Wheater, C.P. (1999) *Urban Habitats*. Routledge, New York.

White, C.S., & M.J. McDonnell (1988) Nitrogen cycling processes and soil characteristics in an urban versus rural forest. *Biogeochemistry* **5**:243–62.

Whitford, V., Ennos, A.R., & Handley, J.F. (2001) City form and natural processes: indicators for the ecological performance of urban areas and their application to Merseyside, UK. *Landscape Urban Planning* **20**:91–103.

Whitney, G.G., & Adams, S.D. (1980) Man as a maker of new plant communities. *Journal of Applied Ecology* **17**: 431–48.

WHO (2007) [online] http://www.who.int/water_sanitation_health/resources/envmanagement/en/.

Wilby, R.L. (2003) Past and projected trends in London's urban heat island. *Weather* **58**(7):251–60.

Wilcke, W. (2000) Polycyclic Aromatic Hydrocarbons (PAHs) in soil – a review. *J. Plant Nutr. Soil Sci.* **163**: 229–48.

Wilcke, W., Lilienfein, J., Lima, S.d.C., & Zech, W. (1999) Contamination of highly weathered urban soils in Uberlândia, Brazil. *J. Plant Nutr. Soil Sci*. **162**:539–48.

Wilcove, D.S., Rothstein, D., Dubow, J., Phillips, A., & Losos, E. (1998) Quantifying threats to imperiled species in the United States. BioScience **48**:607–15.

Wilkinson, D.M. (2001) Is local provenance important in habitat creation? *Journal of Applied Ecology* **38**:1371–73.

Williams, D.R., Patterson, M.E., Roggenbuck, J.W., & Watson, A.E. (1992) Beyond the commodity metaphor: examining emotional and symbolic attachement to place. *Leisure Science* **14**:29–46.

Williams, D.R., & Vaske, J.J. (2003) The measurement of place attachment: validity and generalizability of a psychometric approach. *Forest Science* **49**:830–40.

Williams, N., Schwartz, M., Vesk, P., McCarthy, M., Hahs, A.K., Clemants, S., Corlett. R., Duncan. R., Norton. B., Thompson. K., & McDonnell, M. (2009) A conceptual framework for predicting the effects of urban environments on floras. *Journal of Ecology* **97**(1):4–9.

Williamson, J.G. (1965) Regional inequality and the process of national development: A description of the patterns. *Economic Development and Cultural Change* **13**(4):1–84.

Williamson, O.E. (1985) *The Economic Institutions of Capitalism*. Collier Macmillan, London.

Willig, M.R., Kaufman, D.M., & Stevens, R.D. (2003) Latitudinal gradients of biodiversity: Pattern, process, scale, and synthesis. *Annual Review of Ecology Evolution and Systematics* **34**:273–309.

Willingham, A.L., Ockens, N.W., Kapel, C.M., & Monrad, J. (1996) A helminthological survey of wild red foxes (*Vulpes vulpes*) from the metropolitan area of Copenhagen. *Journal of Helminthology* **70**:259–263.

Willis, K., & Garrod, G.D. (1993) Valuing Landscape: a contingent valuation approach. *Journal of Environmental Management* **37**(1):1–22.

Wilson, E.O. (1984) *Biophilia*. Harvard University Press, Cambridge.

Wilson, E.O. (1987) The little things that run the world (the importance and conservation of invertebrates). *Conservation Biology* **1**: 344–46.

Winde, F., & Frühauf. M. (2001) Sediment- und Schwermetalltransport in städtischen Auengebieten – eine Fallstudie der Saale-Aue bei Halle. *Nova Acta Leopoldina*. **84**(319):23–43.

Wittig, R. (1998) Die ökologische Gliederung der Stadt. In: Sukopp, H. & R. Wittig. *Stadtökologie. Ein Fachbuch für Studium und Praxis*. Fischer, Stuttgart.

Wittig, R. (2004) The origin and development of the urban flora of Central Europe, *Urban Ecosystems* **7**:323–39.

Wittig, R. (2009) What is the main object of urban ecology? Determining demarcation using the example of research into urban flora. In: M.J. McDonnell, A.K. Hahs, and J.H. Breuste. *Ecology of Cities and Towns: a Comparative Approajch,* pp. 523–29. Cambridge University Press, Cambridge.

Woodell, S.R.J., & Rossiter, J. (1959) The flora of Durham walls, *Proc. Bot. Soc. Brit. Is.* **54**:257–73.

Woodell, S.R.J. (1979) The flora of walls and pavings, In I.C. Laurie (ed.) *Nature in Cities,* pp. 135–56. John Wiley & Sons, New York.

Woods-Ballard, B., Kellagher, R., Martin, P., Jefferies, C., Bray, R., & Shaffer, P. (2007) *The SUDS Manual*. CIRIA C697. CIRIA, London [online] http://www.ciria.org/SERVICE/Home/core/orders/product.aspx?catid=2&prodid=155 [accessed 17 October 2010].

World Health Organisation, (2002) *The World Health Report 2002: Reducing Risk, Promoting Healthy Life*. World Health Organization, Geneva, Switzerland.

Wright, S.J., & Muller-Landau, H.C. (2006) The future of tropical forest species. *Biotropica* **38**(3):287–301.

Wu, J. (2008a) Making the case for landscape ecology – an effective approach to urban sustainability. *Landscape Journal* **27**:41–50.

Wu, J. (2008b). Toward a landscape ecology of cities: Beyond buildings, trees, and urban forests. In: M. Carreiro, Y-C. Song and J. Wu (eds) *Ecology, Planning, and Management of Urban Forests*. Springer, New York.

Wu, J., & Loucks, O.L. (1995) From balance of nature to hierarchical patch dynamics: a paradigm shift in ecology. *Quarterly Review of Biology* **70**:439–66.

Wu, J., & Hobbs, R.J. (eds) (2007) *Key Topics in Landscape Ecology*. Cambridge University Press, New York.

WWDR3 (2009) *Water in a Changing World*. Earthscan publications.

WWF (2006) Wildfinder: Online database of species distributions. World Wildlife Fund, Washington, DC.

WWT (2009) [online] http://www.wwt.org.uk/centre/119/london_wetland_centre.html.

Xiao, Q. & McPherson, E.G. (2005) Tree health mapping with multispectral remote sensing data at UC Davis, California. *Urban Ecosystems* **8**:349–61.

XiXi (2009) [online] http://www.xixiwetland.com.cn/en/stbh.htm

Yang, J., Yu, Q., & Gong, P. (2008) Quantifying air pollution removal by green roofs in Chicago. *Atmospheric Environment* **42**:7266–73.

Yaron, B., Calvet, R., & Prost, R. (1996) *Soil Pollution – Processes and Dynamics*. Springer, Berlin.

Yeh, P.J. (2004) Rapid evolution of a sexually selected trait following population establishment in a novel habitat. *Evolution* **58**:166–74.

Yerrel, P. (2008) *BTCV Green Gym® National Evaluation Report.* Oxford Brooks University and the BTCV Green Gym®,Ox ford.

Yli-Pelkonen, V. (2008) Ecological information in the political decision making of urban land-use planning. *Journal of Environmental Planning and Management* **51:** 345–62.

Yli-Pelkonen, V., & Niemelä, J. (2005) Linking ecological and social systems in cities: urban planning in Finland as a case. *Biodiversity and Conservation* **14**:1947–1967.

Yli-Pelkonen, V., & Niemelä, J. (2006) Use of ecological information in urban planning: Experiences from the Helsinki metropolitan area, Finland. *Urban Ecosystems* **9**: 211–26.

Young, R.F., & Wolf, S.A. (2006) Goal attainment in urban ecology research: a bibliometric review. *Urban Ecosystems* **9**:179–93.

Young, R.F., & Wolf, S.A. (2007) Toward a pragmatic program for critical ecology. *Urban Ecosystems* **10**:349–54.

Yunus, M., & Weber, K. (2008) *Creating a World Without Poverty: Social Business and the Future of Capitalism.* Public Affairs, New York.

Zakey, A.S., Abdel-Wahab, M., Pettersson, J., Gatari, M., & Hallquist, M. (2008) Seasonal and spatial variation of atmospheric particulate matter in a developing megacity, the Greater Cairo, Egypt. *Atmosfera* **21**(2):171–89.

Zerbe, S., Maurer, U., Schmitz, S., & Sukopp, H. (2003) Biodiversity in Berlin and its potential for nature conservation. *Landscape and Urban Planning* **62**(3):139–48.

Zhang, G.-L., Burghardt, W., Lu, Y., & Gong, Z.T. (2001) Phosphorus enriched soils of urban and sub urban Nanjing and their effect on groundwater phosphorus. *J. Plant Nutr. Soil Sci.* **164**:295–301.

Zhou, W., Troy, A., Grove, J.M., & Jenkins, J.C. (2008) Can money buy green: demographic and socioeconomic predictors of lawn-care expenditures and lawn greenness in urban residential areas. *Society and Natural Resources* **22**:744–60.

Zipperer, W.C. (2002) Species composition and structure of regenerated and remnant forest patches within an urban landscape. *Urban Ecosystems* **6**:271–90.

Zipperer, W.C., Wu, J., Pouyat, R.V., & Pickett, S.T.A. (2000) The application of ecological principles to urban and urbanizing landscapes. *Ecological Applications* **10**: 685–88.

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