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Article · February 2016

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# The biophilic city and the quest for paradise

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Received 14 July 2015  
Revised 15 February 2016  
20 February 2016  
Accepted 21 February 2016

## Abstract

**Purpose** – This paper explores the possibilities for global concepts of paradise to serve a cross-cultural urban environmental discourse. The purpose of this paper is to contribute to a more widespread mobilization of support for biophilic urbanism.

**Design/methodology/approach** – The methodology deployed in the paper draws from original and secondary sources from a variety of regions, cultures, and religions surrounding the concept of paradise. These concepts are then compared and contrasted with the discourse of biophilic urban environmental planning.

**Findings** – The comparison of cross-cultural descriptions of paradise finds strong similarities across cultures. In addition, it finds close, symbolic connection between secular and religious concepts of paradise and the scientific attributes of urban biophilic planning. These connections open the possibility for closer unification between secular and religious discourses in the pursuit of the development of more biophilic urban designs.

**Originality/value** – The timing of this research is particularly appropriate given the recent encyclical on the environment released by the Vatican. Locating perspectives and imagery that can connect large proportions of the population, for whom spirituality is a centerpiece, with rational scientific perspectives on environmentally sound urbanism will be critical in achieving biophilic cities.

**Keywords** Religion, Urban planning, Sustainable cities, Ecological wisdom, Environmental discourse, Paradise

**Paper type** Research paper

## Introduction

Humanity's arrival as a predominantly urban species has rapidly entered urban and regional planning's litany. Although urban majorities emerged in Europe and the USA between the mid-nineteenth and early twentieth centuries, global population just recently surpassed this landmark (United Nations, 2009; Young, 2009). Parallel social and ecological crises have sparked discussion among researchers, policy makers, and public intellectuals about addressing these challenges by integrating nature and the built environment (Beatley, 2000; Benedict and McMahon, 2006; Register, 2002; Wilson, 2012). The urban planning and design concept of biophilic cities is an important contribution to these discussions.

The biophilic city idea draws initial inspiration from Edward O. Wilson's introduction of biophilia defined as "the innate emotional affiliation of human beings to other living organisms." The co-evolution of the human mind and nature, Wilson argues, makes biophilia "hereditary and hence part of ultimate human nature" (Beatley, 2010, p. 3; Wilson, 1984, p. 1). This deep connection to human nature, Wilson posits, makes biophilia a fundamental part of our behavioral and emotional development, providing basic foundations to our cultural and social expression.

Acknowledging humans' urban future and need to rapidly address modern industry's ecological limits, Timothy Beatley and others' call for biophilic urbanism as a necessary synthesis. Defined as "a city abundant with nature, a city that looks for



opportunities to repair and restore and creatively insert nature,” Beatley (2010) challenges: “we need creative urban design and planning that makes nature the centerpiece, not an afterthought” (pp. 2-4).

However, as Wilson (1984), biophilia’s notes, “to explore and affiliate with life is a deep and complicated process in mental development. To an extent still undervalued in philosophy and religion” (p. 1). Beatley (2010) acknowledges, “the bigger challenge is to scale up the organic model to operate at the level of a city and region, and it is this challenge that links the sustainability enterprise most closely to planning” (p. 54). This challenge, Beatley (2010) argues, requires institutions, networks, and leaders to transcend the “host of significant obstacles to biophilic cities, including economic, social, and cultural obstacles” thus “new institutions and cooperation from existing institutions will be needed” (p. 150).

Interestingly, in listing institutions, networks, and leaders who might creatively advance biophilic city agendas, Beatley joins Wilson and others in overlooking or undervaluing religion and religious institutions as potentially potent allies in biophilic education and activism. While bioregionalists such as Charlene Spretnak (1991) and Thomas Berry (2006) and geographer Peter Hay (2002) address the religious aspect of resolving the ecological crisis, this point appears less evident among proponents of biophilia. Indeed, some researchers declare in order to attain its potential for ecological conservation, biophilia should itself attain religious status (Johnson, 1994; Soule, 1993).

In this paper I argue religious and literary narratives centered on the concept of paradise, offer significant support for biophilic education and activism. I posit within ideals of paradise reside fundamental blueprints toward biophilic urban planning and these ideals are a form of ecological wisdom co-created by human culture and nature. Rather than overlook religious narratives or seek to create a new “biophilic faith,” I argue in favor of identifying and mobilizing biophilic wisdom present in a broad, cross-cultural range of already existing transcendent narratives. For, as Wilson (1984) comments, despite social diversity, “the biophilic tendency [...] cascades into repetitive patterns of culture across most or all societies” and “are too consistent to be dismissed as the result of purely historical events working on a mental blank slate” (p. 85).

Human spiritual interest in biospheric and community health recently gained, widespread attention from the Pope’s Encyclical letter, *Laudato Si’* of the Holy Father Francis *On Care for Our Common Home*. In his message, Pope Francis notes, “the urgent challenge to protect our common home includes a concern to bring the whole human family together to seek a sustainable and integral development [...]” Such unity makes social change possible but he posits, “a new dialogue about how we are shaping the future of our planet [...] a conversation which includes everyone” is necessary. In short, to achieve an ecologically viable future, “We require a new and universal solidarity [...] each according to his or her own culture, experience, involvements, and talents” (Francis, 2015, p. 14).

The principal means to accomplish these ends, many declare, is broad-based political and cultural mobilization around urban environmental issues as, “environmental change requires engagement of the widest possible range of people” (Clair, 2003, p. 73).

However, engaging and motivating broad-based movements to create biophilic cities is constrained by numerous factors fragmenting metropolitan discourse. Mass migrations between urban and rural areas, increasing division between rich and poor, and the mixing of many religions, cultures, and ethnicities through urbanization all serve to fragment and obstruct traditional avenues of governance to establish consensus for biophilic cities.

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Similarly, while the encyclical delivers a powerful message for unifying secular and spiritual perspectives on planetary health, religious, and scientific communities often have difficulty finding a common dialogue to build such consensus. In this paper I present the cross-cultural concept of paradise as a discourse capable of surmounting this fragmentation and motivating broad-based action toward establishing biophilic cities. I argue it can be effectively tied to ecological science and environmental urban planning because it contains the type of tacit, long-term knowledge fundamental to ecological wisdom.

### **Fragmentation**

Long-standing rural to urban migration is experiencing unprecedented acceleration. For example, China is undergoing the largest migration in history placing entire populations in new social contexts (Gugler, 1988; Schuurman and Van Naerssen, 2013; Zhang and Song, 2003; Zhao, 1999). Corollary to global urbanization is rural depopulation where, “rural areas as a consequence of migratory movements lack infrastructural, social, health, and education facilities” fundamental to advancing civic agendas (Bornarova and Janeska, 2012, p. 2).

While global urbanization theoretically generates a unifying urban experience, these same forces are creating a “geography of urban inequality that undermines social cohesion and the experience of citizenship” (Bayon and Saravi, 2013, p. 35). In addition, neoliberal policies further fragment urban forms resulting in metropolitan landscapes increasingly typified by social “islands” symbolized by gated communities and retail outlets, an increasingly common development pattern throughout the world (Borsdorf and Hidalgo, 2005; Janoshka, 2002).

In addition to fragmenting, cities increasingly restrict public spaces to exclude people and activities thought antithetical to attracting footloose capital investment. The result is encroachments on freedom of speech and action further undermining the possibilities vibrant, democratic action in cities (Mitchell, 2003; Young, 2003).

### **Unifying discourses**

#### *Civic environmentalism*

Establishing ecologically and socially just cities requires a discourse powerful enough to overcome widespread social fragmentation. Some researchers and activists offer civic environmentalism as means of addressing splintered social landscapes: “In a system where interest-group governance is dominant, civic environmentalism involves reaching across the boundaries that fragment [...] and [...] divide the citizens and leaders of local communities” (John, 2004, p. 227). Civic environmentalism focusses on devolving policy to local governments and citizens who “custom design [...] process and substance to fit local circumstances” (John, 2004, p. 227).

Devolution, civic environmentalism’s proposed strength is highly dependent upon local factors and governance. However, barriers to public empowerment in non-democratic nations and declining trends in political participation in democracies are significant obstacles to independent grassroots efforts to create ecologically sound communities (Abel and Stephan, 2000).

#### *Science as the universal language*

While local civic dialogue is limited in scope and scale, researchers, activists, and policy makers have placed considerable emphasis on science as a “universal language”

capable of establishing an international discourse crossing cultural and political barriers. To be effective this language must extend beyond the scientific community to the wider public and be adopted by policy elites. Environmental education emerged formally in the 1960s to disseminate environmental science-related information and critical thought identified as vital to achieving biophilic cities (Beatley, 2010; Campbell, 2015). While some institutions have committed resources, repeated calls for national measures to increase environmental literacy have remained largely unheeded (McBeth and Volk, 2010).

Lacking such investment, researchers hold little hope environmental literacy can become broad-based or keep pace with rapid change: “the race, in a sense, cannot be won” but is “in truth a holding action that is needed to buy time” (Hempel, 1996, pp. 223-224; Clair, 2003).

National surveys are pessimistic about the effectiveness of “buying time”. In a longitudinal study of environmental literacy the National Environmental Education and Training Foundation (NEETF) found despite several decades of investment “our citizenry is by and large both uninformed and misinformed” (Coyle, 2005, p. iii). This deficit in environmental science literacy and critical thinking is not limited to the public but also includes social elites. For example, environmental regulators and business students have frequently lacked access to or training in this literacy (Marcus and Jankus in Buchholtz *et al.*, 1992). The NEETF study confirms “a persistent pattern of environmental ignorance even among the most educated and influential members of society” (Coyle, 2005, p. v). Thus it concludes, “there is too little environmental education getting through to children and adults, and the base of knowledge is not being built” (Coyle, 2005, p. 87).

Even if resource and governance barriers were lifted, researchers, public intellectuals, and community activists question relying on science as the sole discourse in framing solutions. Critics note scientific positivism’s search for “universal knowledge independent of social context” is flawed (Fischer, 2000, p. 218). Fischer identifies separating facts and values as the heart of this problem. He offers an alternative: viewing the social world as an “organized universe of meanings” that shape how ordinary people interpret the world and guide their actions “invariably oriented toward a conception of the good or desirable” (Fischer, 1980, p. 38, 2000, p. 19).

This alternative acknowledges the need for explicit, non-expert knowledge, not as a stand-alone strategy of civic governance but to strengthen scientific knowledge through “mutual learning.” However, “because of the fundamental differences in the legitimacy and power of their respective languages [...] the interaction between the technocratic planners and the members of the local community tends to give shape to an unequal communicative relationship” (Fischer, 2000, p. 18). Thus discourses augmenting scientific perspectives need to be powerful and well-rooted in the popular mind having their “own epistemological standing in relation to empirical science” (Fischer, 2000, p. 217).

The need for balance is especially acute in architecture and urban planning where technocratic institutions and approaches have a long history of monopolizing policy and implementation. Despite the introduction of post-modern theories into planning, mainstream planning continues to be “dominated by overly rational, deductive modes of reason” and “in the process, such planners have largely neglected the ideas and interests of the community’s ordinary citizens” (Fischer, 2000, p. 216; Jacobs, 1989; Caro, 1974). This neglect, combined with post-modernity’s own atomizing tendencies and limits to achieving widespread environmental literacy, undermine capacities to

overcome fragmentation and develop consensus for deep environmental and social change (Young, in press). Still, the majority of citizens express favor for a more ecologically sound society despite exhibiting low levels of scientific ecological literacy.

But while researchers identify radical environmental groups as contributing to environmental values and activism, such groups' critique of mainstream society limits possibilities of making this shift rapidly or widespread (Dryzek, 1997). What is required, therefore, is a discourse that can both inform and motivate citizens across a diverse, fragmented social landscape to engage in extensive, committed action toward establishing an ecologically coherent society. To be effective in the immediate as well as long term, this discourse must be a well-established epistemology, already disseminated across diverse constituencies, and offer opportunities for "mutual learning" with formal ecological science.

In this paper I argue the cross-cultural concept of paradise can be that discourse. Already pervasive, its fundamental components span temporal, cultural, and geographic boundaries, and I argue, can be effectively tied to ecological science and environmental urban planning because it contains the type of tacit, long-term ecological wisdom fundamental to biophilic urbanism.

### **Methodology**

To explore this hypothesis I use an inductive, narrative style. I investigate the concept of paradise as represented in primary and secondary sacred and secular texts from a variety of religions and historical periods. I draw from religious texts primarily related to the Abrahamic religions as well as literary texts from the Classical and Renaissance periods and from city and landscape planning histories. Their concepts of paradise are then compared and contrasted with the discourse of biophilic urban environmental planning. I conclude by offering thoughts on implications for planning practice and activism in mobilizing new constituencies to support and advocate implementation of biophilic urbanism.

### **Definition of terms**

#### *Ecological wisdom*

I define ecological wisdom as understanding of ecological systems based in tacit and explicit knowledge gained from historical experience, trial and error, and careful observation. It acknowledges the agency of ecological as well as social forces and prioritizes a broader frame of values accommodating knowledge outside purely rational measurement. Therefore ecological wisdom makes room for the emotional alongside the rational, the mythic alongside the scientific. In short it invites both sides of modernity: rationalism and romanticism. In doing so it encompasses both quantitative assessment of the results of emotionally motivated actions as well as the qualitative assessment of the results of rationally guided actions.

#### *Biophilic cities*

I define the biophilic city as a transdisciplinary venture where concentrated human communities are increasingly incorporated within healthy ecosystem dynamics. As such it seeks to integrate ecology and the social sciences in the planning and management of human dominated ecosystems resulting in socially and ecologically successful outcomes (Beatley, 2000; Berg, 2015; Botkin and Beveridge, 1997; Collins *et al.*, 2010; Niemela, 1999; Wackernagel and Rees, 1996; Register, 2002; Swearingen, 2010).

*Paradise*

I define paradise cross-culturally as a place representing the idyllic community and ultimate abode of the just. I capitalize the term to distinguish it as a transcendent community as opposed to its more common, secular usage, i.e. “a fisherman’s paradise.”

**Etymology and the nature of paradise**

From the beginning cultures have defined “Paradise” in largely biophilic terms as a place integrating humanity and the rest of nature. Paradise derives from *pairidaeza* in Avestan – a language predating Persian – where it meant a royal park, enclosure or orchard. The Hebrew *pardes* meant park or garden and the Greek word *paradeisos*, derived from Persian, extending the meaning to encompass celestial paradise in addition to a park-like garden. The Greek, in turn influenced the Hebrew *pardes* to become spiritually infused as an earthly paradise and later further extended to include celestial heaven. One of the Koranic words for paradise is *firdaus*, an Arabic singular of the Greek word *paradis* and the fullest realization of *jannah*, or garden, the spiritual paradise of Islam (Lehrman, 1980).

The first known use of the word in Western literature was Xenophon’s report of Socrates describing the King of Persia’s interest in gardens (*paradeiso*). This term is associated as well through Latin as meaning a natural enclosure for wild animals and as a concept of “the peaceable kingdom” it is found in many other cultures. Heisod’s *Works and Days* holds the first mention of a Golden Age where the inhabitants “[...] had all good things; for the earth unforced bore them [...]” and Homer’s *Odyssey* mentions Elysion as a place of natural harmony and perfect ease between humanity and nature (Giamatti, 1969; Lehrman, 1980; King, 1979; Slater, 2014).

**Not wild woods forlorn**

Throughout these traditions paradise is conceived as a place combining nature with human construction. The original Avestan breaks the word down into *pairi*, meaning “around” and *diz*, “to mold or form.” Paradise is something created, not found. Depictions of paradise frequently include images and symbols of fruiting trees and abundant flowers framed or associated with arched gateways. Thus paradise is not nature without human presence or arts. Indeed, early Chinese images although naturalistic are not absent human figures, impact, or buildings. In the caves at Dunhuang (circa 400 CE) early Chinese artists created images of paradise integrating light, water, plant life, and human architecture that continue to manifest themselves throughout contemporary Asian art and design (Karetzky, 1997).

In the West, the early Jews regarded the garden, not wilderness, as society’s natural and happiest place (King, 1979). The Old Testament states, “the Lord God planted a garden eastward in Eden” (Genesis 2:8) and society’s existence in nature was fundamental as Adam notes that without Eve, Eden would revert to a “wild woods forlorn.”

This necessity for humanity’s presence was elaborated further in Christianity’s paradise. As Schulz (1985) comments, “[n]ot the least among Eden’s accretion of features in its evolution from scriptural and classic times is the clear-cut differentiation drawn between paradise and the wilderness surrounding it” (p. 17). The Koranic paradise is no wilderness either. Its gardens are inhabited, defined by gates and contain furnished “beautiful dwellings” (Starkovsky, 2005, p. 522). As the Hood Museum of Art retrospective on images of paradise in Islamic art noted, “One of the most powerful

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images in the history of Islamic thought and art is the concept of Paradise as a walled garden” (Blair and Bloom, 1991, pp. 16-34). The Koran often mentions entrance to heaven mediated by a gate and notes eight gateways into *jannah* (Starkovsky, 2005).

In each of these traditions paradise is depicted symbolically as fusing features from the natural and built environments. As such they provide images of paradise that is not nature absent humans and human creations but rather a managed and occupied landscape, a garden where nature and humanity inhabit a place simultaneously with mutual benefit.

### **The global path to paradise**

This web of influence and inspiration is complex, weaving together the earliest urban civilizations with present society. For the West, myths and traditions of the relationship between ecology and society, city and garden, paradise and practical works of civilization emanate with particular force from Mesopotamia where Eden and the ancient city of Ur are persistent symbols of this duality (McIntosh, 2005).

From Mesopotamia such imagery traveled east to Persia and India where intermingled images of a garden paradise became influential in Buddhist symbolism (Lehrman, 1980; Karetzky, 1997). With Islam’s conquest of Persia ideals of the garden paradise joined with Islamic doctrine and were communicated throughout the Muslim empire (Kahnsari *et al.*, 2003). Through the Islamic conquest of Spain and the reconquest of the island of Sicily by the Normans these designs integrating nature and the built environment made their way into Europe and there engaged with spiritual images and traditions of the Classical era and Christianity (King, 1979; Landsberg, 2003). This imagery also combined with indigenous archetypes such as the pagan “Green Man,” a transcendent, hybrid being rooted in both humanity and nature (Antoine, 2003, p. 3).

Together these cultural images lay groundwork for the ideal of the biophilic city: a hybrid city expressing features of a civilization continually integrating humanity with the rest of nature. Neither a subordinate nor fully dominant nature but rather a place both nurtured by and nurturing humanity, the search for this relationship, Wilson (1984) posits, “seemingly an inborn human trait, draws us perpetually forward [...] A quiet passion burns, not for total control but for the sensation of constant advance” (p. 10).

### **Spatial patterns of paradise: the city and the spring of life**

Persian ceramics dating back 4,000 years depict this unity as the world divided by two axes with a pool, the Spring of Life, at the center. This image, a circle divided by crossing axes, is also an ancient, generic representation of the city symbolically placing the wellspring of life at the city’s center. This is similar, in turn, to both Christianity’s ideal configuration of the Garden of Eden and of the Buddhist mandala where it “expresses a vision of the universe, a life symbol [...]” (Handlin and Buchard, 1963; MacDougall and Ettinghausen, 1976, p. 90).

Medieval representations of earthly paradise entered the mainstream at a time when basic intellectual, cultural, and urban patterns of the West were being set. During this period, the form and meaning of the medieval garden was intimately linked to paradise (Landsberg, 2003). Walls or hedges most often surrounded these gardens, the enclosure marking it a sacred area partitioned into four quadrants by paths or streams. This reflected passages in the Bible’s *Book of Genesis* describing Eden as a garden divided by the four rivers of paradise. “Monastery cloister gardens often present this structure



of space divided into four squares with a tree or fountain in the centre: the monks who strolled there could also meditate on this miniature Paradise” (Antoine, 2003, p. 12).

The fountain or tree often placed at the center of the perpendicular paths, streams, or canals within the garden was deep in meaning symbolizing, for the ancient Persians the life force in the city; for the Jews the light of God and the fountain of eternal life springing from Eden; and for the Christians a symbol of the life of the Church such as Christ or the Virgin Mary. Paradise was seen as the ultimate unity between nature, humanity, and the Creator and at the center of the terrestrial design is a vibrant symbol of the eternal wellspring and flow of life.

### **Abstract Elysium**

This comprehension of ecologically dynamic design was not limited to the West. Arabian urban green spaces also were constructed to encompass the varied dynamics of ecology. Such spaces contained ornamental and wild flowers, orchards, food, and medicinal plants “because the Arab garden was at once flower garden, kitchen garden, and orchard all in one” (MacDougall and Ettinghausen, 1976, p. 104).

While green spaces in the Islamic city were and are geometric in form, their purpose on a symbolic level remains close to the ideals of nature to which both medieval monastic gardeners and contemporary urban ecologists aspire. The mathematic nature of Islamic designs seek to capture conceptually through geometric proportions the importance of laws and structures in the natural world and of the transcendent intellect of humanity: “There is something of both the lucidity and perfection of the snowflake and the beauty of a geometrically formed flower in the Islamic paradise which when manifest in Islamic art and architecture re-captures an echo of that paradise” (Nasr, 1987, p. 48).

Thus the deeper, Platonic essence of nature and humanity are integrated and evoked in physical form. One cannot see the ecological intent set within the abstract designs of Islamic architecture, poetry, and landscape design without grasping the poetic meaning symbolized by their plantings and geometric form. The “root” of Islamic architecture is based on this principal. “Indeed, one can understand neither the Islamic garden nor the attitude of the Muslim toward his garden until one realizes that the terrestrial garden is considered a reflection or rather an anticipation of Paradise” (MacDougall and Ettinghausen, 1976, p. 90).

Such symbolism permeates aspects of Asian design as well. Japanese architectural gardens are similar to Islamic gardens in that they do not attempt to replicate nature but rather capture its essential dynamics and meaning. The rise of religion in the Kamakura era in Japan from the late twelfth century to the mid fourteenth guided the construction of green spaces reflecting Buddhist notions of paradise. “Metaphysics entered the garden and the contemplation of the natural cycle of living things deepened into symbolism of life and death and speculation on nature and man” (King, 1979, p. 55). These gardens provided a representation where contemplating these relationships could reveal enlightenment.

This impulse to locate Eden, Paradise, or the Golden Age persists in the essential elements driving biophilic urban design: the quest to return humanity to an integrated relationship with creation where the continuous flow of life is its centerpiece and organizing principal.

### **The literature of paradise**

“The moment the spark ignites,” conservation biologist E.O. Wilson (1984) declares, “intuition and metaphor are all-important, the artist most closely resembles the

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scientist” (p. 74). Thus, ideas central to the scientific management and restoration of the biophilic city are found throughout the literature of paradise. In Genesis 2:15, God places humanity in the Garden of Eden with the instructions “to dress and to keep it.” Milton takes up this command and in the Eden of *Paradise Lost* depicts Adam and Eve going about the work of maintaining the Garden.

However, in addition to stewardship, a central spiritual theme is of paradise known, lost, and regained. Although the idea of a Golden Age, reflected in Classical literature and the Christian epic is absent in the rational, scientific approach of environmental planning, it retains a discourse of lost biodiversity, ecological health, and quality of life fused with the goal of regaining, through cultural and scientific means, much of what has been forfeited achieving, in the end, a higher and more transcendent form of civilization.

The nature of this goal is often reflected in seminal medieval literature of paradise embodying a quest to reunify humanity with the natural world. The *Roman de la Rose*, the classic text of courtly love published circa 1,230, culminates in such unity. Genius presents a speech to Venus for all men “to live according to natural law, and according to fecund and eternal Nature” declaring “if a man lives a virtuous life, loving according to Nature and God (for Nature is a reflection of the divine) then nothing will hinder him” from entering true paradise. In this manner the Garden of the Rose was a place where, through love of God and nature, one could enter the ultimate paradise and such imagery had considerable impact. The *Roman de la Rose* “haunts the literature of the succeeding centuries. Its allegories, its landscapes, its visions of love earthly and divine, left an indelible mark upon the imagination of the West” (Giamatti, 1969, pp. 64-66).

Perhaps one of the strongest images evoking the primacy of human action in attaining the garden cities of paradise is Dante’s *Divine Comedy*. In his arduous journey toward the celestial center of creation and the soul, Dante’s pilgrim in *Divine Comedy* encounters Beatrice who tells him, “Here shalt thou be a short time a forester” promising that in doing so he shall become a citizen in the City of God. This vow, “sums up the two dominant external landscape (and thus inner spiritual) images of the poem – the garden and the City. It ‘plants’ as it were the City in the garden” (Giamatti, 1969, p. 114).

The City of God represents the ideal city as the Garden represents ideal nature. When the pilgrim, as a forester, becomes part of the Garden he becomes worthy for his final journey to the city. He does not abandon the Garden but rather comes to where Garden and City are essentially joined: “The Garden of Eden simply reflects the City of God,” and the City of God, “is described in none other than earthly paradise terms.” Water, flowers, sweet odors, and springtime, all ancient symbols of paradise, reflect the essence of the ideal city. In attaining the highest level of creation the pilgrim has “come to where the City and the Garden will finally merge.” Beatrice tells him there is deeper meaning to this landscape. The pilgrim washes his eyes in the river and the vision before him changes: “so that I saw both the two courts of heaven manifested.” Alternating between images of Garden and City, the poem brings the pilgrim and the reader to a place where “[f]inally, the City includes all [...] the twin images of Garden and City are married in the final, luminous vision” (Giamatti, 1969, pp. 117-118).

### **Paradise rebuilt**

Such active unity is not limited to spiritual and secular literature. Throughout history humanity attempts to marry Garden and City at scales varying from urban households to great estates to cities. In these efforts to realize paradise countless city-builders have laid initial groundwork for biophilic cities. Through design rooted in specific ecologies of place they developed practical understanding and accomplished plans creating cities

more closely wed to healthy ecosystem dynamics. Although researchers often consider current green designs and research unique innovations, earlier civilizations made equally impressive and artful breakthroughs in these areas.

At the home, courtyard, or estate scale we are beginning to appreciate the medieval period's high degree of sophistication. For example, Benedictine Christian monasteries were often designed as self-reliant spiritual communities centered on local production, recycling of nutrients, and natural healing. Frequently surrounded by a green belt of gardens and vineyards where manure was recycled they included healing gardens focussed on cultivation of medicinals and centered on a "green court" – the village green of the monasteries.

Cemetery orchards were designed with such synergy in mind. In early Persia as well as Christian Southern European and Islamic communities, cemetery orchards often symbolized paradise. Practically, they recycled nutrients into the human food chain while avoiding annually plowing up of the dead. Coppicing trees in these orchards and throughout towns, green spaces, and farms offered shade and sustainable fuel while reducing deforestation.

In Cordova and Seville similar gardens and court-yards were constructed to act as outdoor rooms, integrated into the design of buildings as a whole. Throughout medieval Europe, *hortus conclusus*, small, "garden rooms" were built where in fair weather one could undertake the meditations of the day. These enclaves were sometimes elaborately constructed to mimic rooms built with more standard materials, featuring walls of hedge with windows and doors cut out and turf covered benches within. Indeed the garden of courtly love, one of the secular subjects most considered in the late middle ages were also the element of medieval courtyard design most thoroughly infused with living elements "calling on architectural features made of greenery: pergolas, bowers, arbours, pavilions," trellises, and the like (Antoine, 2003, p. 16). Timothy Beatley notes in *Biophilic Cities*, contemporary city dwellers "should be able to leave their front door and move through a series of green features and biophilic elements, moving [...] from garden and courtyard to green street and municipal forest and then to larger expanses of regional nature" (Beatley, 2010, p. 83).

Through generations of experimentation these green design elements like *hortus conclusus*, the use of water features for cooling and reducing noise, trees for shade, flowers for scent, birds for song, vegetation to reduce dust, and the elaborate living fences and vine trellises of the countryside were all devised as part of the living, spiritual landscape of the middle ages. Much later innovators like "Capability" Brown incorporated such designs by expanding notions of *hortus conclusus* to include the built environment and the entire countryside (Schulz, 1985, p. 37). At the core of biophilic planning is the ideal of extending it even further to include the city-region as a whole.

In the Islamic world this effort is a primary symbol of religious and secular importance:

Through Divine Command which placed nature as the Muslim's temple of worship, the sacred architecture of Islam becomes an extension of nature as created by God within the environment constructed by man. It becomes encompassed by and participates in the unity, interrelatedness, harmony, and serenity of nature even within the environment of the city or town. It becomes in fact a centre from which these qualities emanate to the whole of the urban environment (Nasr, 1987, p. 37).

In this manner, Islam recognizes nature as the "first mosque." Thus human-made mosques seek to capture not the outward form of unity with nature but the essential form, the spiritual connection between humanity and nature.

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As Beatley (2010) notes, this legacy has enabled “the Spanish [to] effectively tie together the natural with the history and cultural heritage of their cities” (p. 87). An example of the fusing of nature and Moorish architecture is found in The Patio of the Oranges, one of the oldest continuous gardens in Europe, laid out by Al-Mansur in the year 976. There, “Each row of orange trees leads up to one of the arched openings of the mosque and is, in effect, a continuation of the line of a row of pillars within and thus preserves a perfect illustration of the continuing preoccupation of the Islamic architects and garden designers with the integration of the garden and the building.” This perspective is also felt at Alhambra in Granada where, “the remaining Moorish gardens are so closely integrated with the buildings that they are architecturally one” (King, 1979, pp. 70-71). Secular buildings also made efforts to approximate this relationship. A palace in Shiraz, Persia had streams flowing through the rooms and courts of the palace and Clavijo, the famous ambassador from Henry III of Castile and Leon, described meadows in the palace for the emperor to walk in (Hobhouse, 2004; Kahnsari *et al.*, 2003).

The ability to integrate ecological features into built environments over a range of continents, climates, and micro-habitats required a great deal of testing, trial and error, and institutionalized knowledge to be successful. The high praise of military officers, diplomats, and travelers visiting these cities are testimony to the degree urban dwellers living in these regions were deeply knowledgeable about the ecological attributes of their homes. Their success was manifest. As Evlia Celebi (1611-1684), an Ottoman geographer, traveler, and urban observer noted, cities he visited gave, “a foretaste of the gardens of paradise, so the tongue is lost for words when trying to describe it” (IPIA p. 21).

### **The machine and the garden**

Not only the ancients grappled with such a goal. Well into the enlightenment and industrial revolution significant efforts were made to fuse the garden and the city to create a new, earthly paradise. Early efforts to “naturalize” the great English estates “jumped the fence” to conceive the world as potential gardens of Eden. Sir William Temple’s book, *Of the Gardens of Epicurus*, expounded ideas of bringing “naturalness” to human derived landscapes. By 1719, William Kent was trying to bring this design approach into widespread use in England by fusing the wild, or niches of the wild, and pastoral with the built environment arguing this was not mere fashion but how people could best live. The prolific observer Horace Walpole praised Kent as the father of modern gardening: “He leapt the fence and saw that all nature was a garden.” The result, he noted was, where “Mahomet imagined an Elysium, Kent created many” (King, 1979, p. 180). Walpole felt “Capability” Brown, England’s giant of landscape architecture, had thoroughly achieved such integration remarking: “So closely did he follow nature his works will be mistaken for it” (King, 1979, p. 196).

William Robinson continued and refined Brown’s ideas in his 1881 book *Wild Garden*. Working with others, such as Gertrude Jekyll and Christopher Lloyd – “the Surrey School” – he pursued ecological and aesthetic design by inserting flowers into the landscape in natural geometry, advocating letting lawns go to hay, and planting bulbs and flowers throughout reviving, in modern form, the medieval flowery mead. The objective was not a return to a state of nature or primacy of wilderness but the acknowledgment that nature has inherent order and that order can remain while integrated into human design. Indeed, the Third Earl of Shaftesbury recoiled from the geometric garden villas of the continent declaring at the beginning of the eighteenth

century “the true instincts of man urged him always toward the natural scene, the paradise of the Garden of Eden to which in his primitive state he had been so long accustomed” (King, 1979, p. 179).

Riding the wave of Victorian optimism and prosperity, English architect John Nash unveiled a plan of “daring social gesture” to bring countryside vistas into London neighborhoods on a citywide scale. Although critics found the idea of “a garden in the street [...] preposterous” Nash’s proposals yielded innovations in urban planning and influenced generations of urban designers. In France, the architect Claude-Nicholas Ledoux’s book *Architecture Considered in Relation to Art, Morals, and Legislation* (1804) conceptualized an entire city “whose neighborhoods, dedicated to peace and happiness, would be planted with gardens rivaling Eden.” His two volume opus “encapsulates the dream of the century: a society living harmoniously in an urban environment of natural rightness, with streets harking back to the prototype of leafy lanes between trees, and of buildings whose columns are reminders of Edenic forests” (Schulz, 1985, p. 156).

As the scientific and manufacturing prowess of the Industrial Revolution arose, the City of London hosted a World’s Fair to display the reach and power of this new titan at what was in many ways, the height of its hegemonic powers. The 1851 event opened by Queen Victoria and Prince Albert showcased the rich developments in production and engineering featuring an immense “Crystal Palace” offering an “inspired vision of the city as a new earthly paradise.” Contemporary observers frequently compared the Crystal Palace to a secular cathedral celebrating a new deity: the creative capacities of human kind. The Palace stood as a simultaneous exhibition of manufactures and garden conservatory. Its layered themes boasted the productive and commercial prowess, botanical expanse, and engineering capacities of the empire joined as one.

Thus the voluptuous abundance promised in ancient descriptions of Eden was presented in its newly realized commercial and imperial form. More than a drab or even exciting convention of new wares, the Fair took on the mantle of greater social dreams: an exhibition establishing “[h]uman ingenuity had wedded the garden and the city, rural and urban environments, to create an improved Eden of modern tastes and living comforts.” So doing, the World’s Fair and Crystal Palace held in Hyde Park, “achieved an imaginative fusion of the garden and the city to re-affirm the possibilities of paradise on earth in terms of old ends and new means” (Schulz, 1985, pp. 180-193).

The Hyde Park exhibition did not offer this vision for the first time, however, it did so in a new manner. Joining the Romantic ideal that to achieve the aesthetics of paradise civilization should embrace rather than disregard nature, was added the Edenic visions of the Industrial Revolution: that scientific rationality could unveil the workings of nature and yield the world of ease and plenty promised in the secular and sacred literatures of paradise. It thus brought together two elements fundamental to biophilic cities: the Romantic image of humanity and nature inextricably bound, and the scientific capacity to perceive, understand, and nurture the dynamics of such union.

These factors underpinned fundamental aspects of the City Beautiful movement (circa 1890-1930). This broad civic movement addressed a wide range of urban ills from pollution and public health to corruption and civic virtue. In the process it made significant contributions to emerging fields of professional planning and landscape architecture (Miller, 1996; Wilson, 1989). City Beautiful supported and initiated comprehensive urban planning, large-scale urban park development, and expanded public regulation, infrastructure, health services, and beautification in cities throughout the world (Freestone, 2000; Stelter, 2000; Wilson, 1989). In doing so it embraced

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scientific rationalism, environmentalism, and aesthetics within the subtext of a spiritually informed cause. The driving force behind a broad range of comprehensive plans, significant urban reconstruction projects, and placement of health and beauty as central features of city development agendas, the City Beautiful movement “exuded hope, optimism, and a conviction of their own rightness. They believed that they could reform through successive approximations of their urban ideal – a clean, beautiful, well-governed city – and eventually achieve a heaven on earth, secular in form though imbued with Christian principals” (Wilson, 1989, p. 40).

The ideal of uniting science and technology with spirituality and nature also deeply inspired the City Beautiful movement’s more regional counterpart, the Garden Cities movement. Sir Ebenezer Howard, author of *Garden Cities of To-Morrow* (1902) and founder of the international Garden Cities movement declared “unholy, unnatural separation of society and nature” the ultimate obstruction to humanity’s potential and “relations of man to the Supreme Power” (Howard, 1898/2003, p. 5). The solution, he argued, was creating a network of garden “social cities” surrounding larger metropolitan centers to ameliorate urban overcrowding and rural decline: “*Town and country must be married,*” he argued, “and out of this joyous union will spring a new hope, a new life, a new civilization” (Howard, 1898/2003, p. 10). Howard’s graphic images of the ideal design for such garden cities was an industrial reflection of the medieval *hortus conclusus* garden paradise, placing a park and gardens in the city center surrounded by public buildings, a commercial crystal palace, residences, and an outer ring of factories all enclosed within a continuous, protective green belt.

More inventor and organizer than utopian, Howard participated in bringing many of his ideas to fruition through establishing the first two “garden cities,” Letchworth and Welwyn. These communities, the influence of Howard’s book, and efforts of his Garden City Association (now the Garden Cities and Town Planning Association) influenced a remarkable number of garden city communities throughout the world (LeGates and Stout, 2011). In addition to numerous communities affected by Howard’s ideas, the garden city informed urban and regional planning legislation in the UK and has had significant influence on planning ideas in China during its recent rapid urbanization (Wu, 2010; Wu and Zhao, 2010). These impacts, in sum, make Howard perhaps the most influential planner in history (LeGates and Stout, 2011). His work combined with myriad similar efforts throughout the world place the ideal of paradise, a transcendent humanity joined with the rest of nature in a just and mutually beneficial community, as arguably a dominant idea of planning’s history rivaling that of the market or capital accumulation.

### **Toward a discourse of paradise and the biophilic city**

Particular images of paradise echo with great repetition throughout spiritual and literary writings and built environments of ancient and contemporary cultures and beliefs. Although judged myths within the culture of scientific rationalism, ecological wisdom does not exclusively dismiss myth from the realm of science for, as E.O. Wilson (1984) notes, in the quest to comprehend biophilia, “the full answer can only be given through a combined idiom of science and the humanities” (p. 53).

Ecological wisdom identifies many ideas and projects conceived before the scientific method and intellectual revolutions of the enlightenment as valid and often profound signposts to establishing truly sustainable communities. As such, myth can often be viewed as legitimate efforts to explain natural and social phenomenon. This realm of human understanding has enjoyed growing acceptability in literatures such

as Traditional Ecological Knowledge (Canadian Arctic Resources Committee, 1997; Snyder, 1977).

Derived over centuries these images of paradise, though symbolic bear direct parallels to the patterns and processes of the robust social and ecological systems embraced by biophilic cities. “The essence of art, no less than of science, is synecdoche. A carefully chosen part serves for the whole. Some feature of the subject directly perceived or implied by analogy transmits precisely the quality intended” (Wilson, 1984, p. 63). Thus, these images have laid deep foundations for popular, common discourse addressing urban environmental issues. The ecological wisdom contained within the tenets of paradise can support broad-based political and cultural mobilizations necessary for the global transition to biophilic cities (see Table I).

Whether the Classical poetry of Virgil, the Renaissance Christian poems of Ariosto or Dante, or the verses of the Koran the metaphor of eternal spring weaves throughout the descriptions of the enclosed chambers and gardens of paradise. Although literal interpretation is ecological impossibility its symbolic meaning as

Paradise metaphor	Scientific translation	Biophilic city planning
Renewal and eternal spring	Social and ecological regenerative capacities uncompromised	A community where regard for life is the guiding principle
No suffering or disease	Healthy systems buffer stress, yielding greater resiliency that mitigates disease and disruption	Healthy, active transportation (walking, biking), green open space for recreation and ecosystem services, green infrastructure and other clean air, soil, and water infrastructure; productive systems that minimize or eliminate pollution
No scandal, litigation, or conflict	Connecting urban ecosystems with natural cycles reduces necessary human intervention in maintaining urban infrastructure. Resource conservation can reduce resource-based social conflict	Focus on conservation and renewable material and energy resources and technologies such as energy efficiency, industrial ecology, solar and wind technologies, recycling and reuse, green design, and biomimicry
Harmonious co-existence “peaceable kingdom” of humans and the rest of nature	Biodiversity	Planning the urban landscape for other species, in addition to humans, through wildlife preserves, habitat enhancement; and reducing energy, water, and material use to ensure sufficient resources for robust ecosystems
Flux	Dynamic equilibrium	Public spaces that support a diverse, dynamic population and encourage the exchange of ideas, culture, and actions
Home of the just and moral	Sanctity of law	Watershed, municipal, neighborhood, or regional regulatory boundaries and cultural norms recognizing the rights of the community of life

**Table I.**  
Unifying discourse

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allegory of a well-maintained place where life's regenerative force remains uncompromised offers direct correlation to the ultimate objectives of biophilic cities.

A similarly frequent, cross-cultural theme is paradise as a place without suffering or disease. Again, literally unattainable this symbolically describes another major tenet of biophilic planning: integrated, healthy ecosystems have greater capacity to buffer stress, yielding increased resiliency and mitigating excessive outbreaks of disease and disruption (Tzoulas *et al.*, 2007; Qureshi, 2010; Van Bruggen and Semenov, 2000; Whitford *et al.*, 1999).

Pindar, Greek composer and poet wrote of paradise 2,500 years ago, "far from labor and battle do they live. They escape scandal and litigation" (Giamatti, 1969, p. 21). Though Pindar's notion inhabitants of a garden city paradise will be free of scandal and litigation is perhaps too hopeful, symbolically the idea of greater stability within natural laws remains even when the Muse is exchanged for the rigor of rational science. That citizens will reside far from labor and battle develops two further themes: connecting urban ecosystems with other natural cycles can reduce need for human intervention in maintaining urban infrastructure and resource conservation can reduce resource-based conflicts (Collier, 2003; Collier and Hoeffler, 2012; Tabb, 2007; Young, 2010).

This stability, however, has a counterpoint in earthly paradises of Renaissance poetry where the space between reality and illusion offers endless possibility of flux. The highly influential epic poem of paradise, the *Furioso* (circa 1516) by Ariosto, encompasses a chaotic structure reflecting a world "not merely in flux, but of flux" (Giamatti, 1969, p. 138). Through this disruptive environment the poem contains a spirit of tolerance reflecting an "acceptance of the fact that nothing on earth can be regarded as fixed or finished [...]" (Giamatti, 1969, p. 139).

This understanding of differing layers of flux and stability, chaos and order, introduced with such power by Renaissance science and literature sets the stage for contemporary ecological and social science which criticize static notions such as climax communities (Sprugel, 1991; Whittaker, 1953). For urban ecology the idea of a climax city consisting of perfectly determined and designed social and ecological systems has been replaced by the ideal of biophilic cities as beautiful and desirable, but also containing constant and ultimately unpredictable flux (Beatley, 2009; Pickett *et al.*, 2004).

The structure of Classical, Christian, Islamic, and Buddhist architecture and design signified terrestrial paradise would reflect not only essential patterns and processes of ecosystem dynamics but also elements of higher human virtues. The earthly paradise was conceived as a place where such virtues reigned in juxtaposition to the lawlessness of other human settlements. Heisod described terrestrial paradise as an actual place, not reserved for only past heroes but presently attainable by those "who do true justice." The reward for individuals who cleaved to such deportment, he inferred, was an abundant environment safe from ecological or social catastrophe.

Similarly, the Roman poet Horace, writing in the last century before Christ described the moral nature of the Enchanted Isles of paradise: "Jupiter set apart these shores for a righteous folk, ever since with bronze he dimmed the luster of the Golden Age" (Giamatti, 1969, pp. 63-66). Virgil (70-19 BCE) was among the foremost of poets to illuminate such an age and in doing so helped lay groundwork for Judeo-Christian adoption of a golden period in the past, and with their Abrahamic brethren the Muslims, anticipation of its future return, for the Koran also indicates the city of paradise will be unlocked for those walking a moral path, "This is a remembrance; and for the god-fearing is a fair resort, Gardens of Eden, whereof the gates are open to them" (Koran 38:49-50).



Prudentius in the fourth century AD also described paradise as “the land of the just” and the medieval manorial landscape was intentionally designed to embody symbolic elements of moral beauty. Thus the medieval community was a landscape bounded, not only by trellises, moats, hedges, or walls but also by moral imperative. In the 1600s such allegories in Milton’s descriptions of Eden in *Paradise Lost* infused later projects influencing a host of landscape designers and thus, according to Martin Price, providing “a moral basis” to their theories.

This concept of the Golden Age continues to evolve. In the secular, post-enlightenment world a modern corollary to Heisod’s “true justice” is morality extended to the widest circle of life possible through, for example, ecosystem rights or Aldo Leopold’s land ethic (Environmental Community Legal Defense Fund, 2014; Leopold, 1970). The biophilic city is founded in a similar proposition that diversity of life beyond humanity is necessary and has a right to exist in as natural a manner as possible (Campbell, 2015). In this sense the biophilic city implies a deep-seated morality, offering a secure and fruitful basis for society – the achievement, albeit scientifically, and rationally, of Elysium. Thus, the moderate climate, social harmony, bountiful life, and even morality suggested as attributes of paradise have equivalents in biophilic cities’ ability to mitigate climate change, lessen social strife, increase species abundance, and encourage civic virtue (Dunn, 2010; Hostetler, 2011; Newman *et al.*, 2009).

### **Conclusion**

Understanding connections between the discourse of paradise and dynamics of resilient ecosystems, and their nearly ubiquitous representation in cultures around the world opens opportunities for shared dialogue about humanity’s urban future. To succeed, environmental planners, policy makers, and activists need to be able to communicate with and motivate broader constituencies than they have to date. The demographics of religious faith offer this opportunity. The Gallup Poll reported in 2013 that 40 percent of Americans reported attending religious services within a seven-day period. Gallup reported 56 percent identified religion as “very important to their lives;” percentages consistent since the 1940s and higher than those reported in other developed nations. While most European church attendance is declining, it remains well above 50 percent in many developing nations and is rising in nations experiencing economic difficulties (Newport, 2013; University of Michigan News, 2007). European decline, the Guardian notes, may be further offset by rapid increase of its Muslim population slated to surpass the global Christian population by 2070 (Yuhas, 2015). And globally, according to a Pew Research study, “more than 8 in 10 people identify with a religious group” (Harper, 2012, p. 1).

The scale and diversity of these numbers reflect the possibilities and challenges to motivating efforts to establishing biophilic cities. The presence of ecological wisdom in global concepts of paradise fundamental to the foundational beliefs and artifacts of such a large percentage of global culture provides opportunities for researchers, policy makers, and public intellectuals to develop a new, common discourse across a wider public around planning resilient, biophilic cities and landscapes.

It is a discourse enabling mutual learning between non-expert and scientific knowledge with epistemologies of sufficient depth and commonality to encourage a dialogue on equal footings of respect. It is anchored in a deep-seated, pervasive desire that has proven historically to be a major driver in inspiring social action. In this manner it offers possibilities for planners and organizers to connect spiritual and secular themes in support of biophilic agendas. As such it is a discourse planners and

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activists can harness to motivate citizens across a diverse, fragmented social landscape to engage in widespread, committed action toward establishing an ecologically coherent society.

In perhaps the strongest terms since humanity first dreamed of the gardens of paradise, humanity now holds the tools to approach and build Blake's New Jerusalem and arrest and repair the damage that has been done. We have learned enough to know that this place will not be the static harmony of Ephram's Peaceable Kingdom. It will be, rather, a place of constant change and evolution but one that also carries with it the feature of future hope. We stand, as Milton's rebel angels did after the Fall at the center of a landscape increasingly consumed. But by the means of modern science and the power of ancient poetry we may conclude this "dubious Battle on the Plains of Heaven" by finding a common language in favor of paradise regained.

### References

- Abel, T.D. and Stephan, M. (2000), "The limits of civic environmentalism", *American Behavioral Scientist*, Vol. 44 No. 4, pp. 614-628.
- Antoine, E. (2003), *The Medieval Garden*, Reunion des Musees National, Paris.
- Bayon, M. and Saravi, G. (2013), "The cultural dimensions of urban fragmentation: segregation, sociability, and inequality in Mexico City", *Latin American Perspectives*, Vol. 40 No. 2, pp. 35-52.
- Beatley, T. (2000), *Green Urbanism: Learning from European Cities*, Island Press, Washington, DC.
- Beatley, T. (2009), "Nature of Cities", Throughline Productions (Film), Boulder, CO.
- Beatley, T. (2010), *Biophilic Cities: Integrating Nature into Urban Design and Planning*, Island Press, Washington, DC.
- Benedict, M. and McMahon, E. (2006), *Green Infrastructure*, Island Press, Covelo, CA.
- Berg, P. (2015), *The Biosphere and the Bioregion: Essential Writings of Peter Berg*, in Gotfelty, C. and Quesnel, E. (Eds), Routledge Press, New York, NY.
- Berry, T. (2006), *The Dream of the Earth*, Sierra Club Press, San Francisco, CA.
- Blair, S. and Bloom, J. (1991), *The Here and the Hereafter: Images of Paradise in Islamic Art*, Hood Museum of Art, Dartmouth College, New Hampshire.
- Borsdorf, A. and Hidalgo, R. (2005), "The fragmented city: changing patterns in Latin American cities", *The Urban Reinventors*, Vol. 9 No. 3, pp. 1-18.
- Bornarova, S. and Janeska, V. (2012), "Social impact of emigration and rural-urban migration in Central and Eastern Europe", European Commission DG Employment, Social Affairs and Inclusion, EU, Brussels.
- Botkin, D. and Beveridge, C. (1997), "Cities as environments", *Urban Ecosystems*, Vol. 1 No. 1, pp. 3-19.
- Buchholtz, R., Marcus, A. and Post, J. (1992), *Managing Environmental Issues: A Casebook*, Prentice Hall, Englewood Cliffs, NJ.
- Campbell, M. (2015), "Resilience and equitable access to urban nature", available at: [www.youtube.com/watch?v=QpGHhuMv0us&feature=youtu.be](http://www.youtube.com/watch?v=QpGHhuMv0us&feature=youtu.be) (accessed February 14, 2016).
- Canadian Arctic Resources Committee (1997), *Voices from the Bay: Traditional Ecological Knowledge of Inuit and Cree in the Hudson Bay Bioregion*, Canadian Arctic resources Committee, Ottawa.
- Caro, R. (1974), *The Power Broker: Robert Moses and the Fall of New York*, Alfred Knopf, New York, NY.

- Clair, R.S. (2003), "Words for the world: creating critical environmental literacy for adults", *New Directions for Adult and Continuing Education*, Vol. 2003 No. 99, pp. 69-78.
- Collier, P. (2003), "Natural resources, development and conflict: channels of causation and policy interventions", Oxford University and the World Bank, Washington, DC.
- Collier, P. and Hoeffler, A. (2012), "High-value natural resources, development and conflict: channels of causation", in Lujala, P. and Rustad, S. (Eds), *High-Value Natural Resources and Peacebuilding*, Earthscan, London, pp. 297-312.
- Collins, S., Carpenter, S., Swinton, S., Orenstien, D., Childers, D., Gragson, T., Grimm, N., Grove, J., Harlan, S., Kaye, J., Knapp, A., Kofinas, G., Magnuson, J., McDowell, W., Melack, J., Ogden, L., Robertson, G., Smith, M. and Whitmer, A. (2010), "An integrated conceptual framework for long-term social-ecological research", *Frontiers in Ecology and the Environment*, Vol. 9 No. 6, pp. 351-357.
- Coyle, K. (2005), *Environmental Literacy in America: What Ten Years of NEETF/Roper Research and Related Studies Say about Environmental Literacy in the US*, The National Environmental Education and Training Foundation, Washington, DC.
- Dryzek, J. (1997), *The Politics of the Earth: Environmental Discourses*, Oxford University Press, Oxford.
- Dunn, A. (2010), "Siting green infrastructure: legal and policy solutions to alleviate urban poverty and promote healthy communities", *Environmental Affairs Law Review*, Vol. 41 No. 37, pp. 41-66.
- Environmental Community Legal Defense Fund (2014), "First-in-nation: ecosystem files to defend legal rights to exist and flourish", available at: [www.celdf.org/press-release-first-in-nation-ecosystem-files-to-defend-legal-rights-to-exist-flourish](http://www.celdf.org/press-release-first-in-nation-ecosystem-files-to-defend-legal-rights-to-exist-flourish) (accessed November 21, 2014).
- Fischer, F. (1980), *Politics, Values, and Public Policy: The Problem of Methodology*, Westview Press, Boulder, CO.
- Fischer, F. (2000), *Citizens, Experts, and the Environment: The Politics of Local Knowledge*, Duke University Press, Durham, NC.
- Francis, P. (2015), *Laudato si*, Libreria Editrice Vaticana, Vatican City.
- Freestone, R. (2000), "From city improvement to the city beautiful", in Hamnett, S. and Freestone, R. (Eds), *The Australian Metropolis: A Planning History*, Allen & Unwin, Sydney.
- Giamatti, B. (1969), *The Earthly Paradise and the Renaissance Epic*, Princeton University Press, Princeton, NJ.
- Gugler, J. (1988), *The Urbanization of the Third World*, Oxford University Press, Oxford.
- Handlin, O. and Burchard, J. (Eds) (1963), *The Historian and the City*, Vol. 53, MIT Press, Cambridge.
- Harper, J. (2012), "84 percent of the world has faith, a third are Christian", available at: [www.washingtontimes.com/blog/watercooler/2012/dec/23/84-percent-world-population-has-faith-third-are-ch/](http://www.washingtontimes.com/blog/watercooler/2012/dec/23/84-percent-world-population-has-faith-third-are-ch/) (accessed February 19, 2016).
- Hay, P. (2002), *Main Currents in Modern Environmental Thought*, Indiana University Press, Bloomington, IN.
- Hempel, L. (1996), *Environmental Governance: The Global Challenge*, Island Press, Washington, DC.
- Hobhouse, P. (2004), *Gardens of Persia*, Kales Press, Carlsbad, CA.
- Hostetler, M. (2011), "Conserving urban biodiversity? Creating green infrastructure is only the first step", *Landscape and Urban Planning*, Vol. 100 No. 4, pp. 369-371.
- Howard, E. (1898/2003), *To-Morrow: A Peaceful Path to Real Reform*, Routledge Press, Abingdon.
- Jacobs, J. (1989), *The Death and Life of Great American Cities*, Random House, New York, NY.

- Janoschka, M. (2002), "The new model of the Latin American city: fragmentation and privatization", *EURE-Revista latinoamericana de Estudios Urbano Regionales*, Vol. 28 No. 85, pp. 11-29.
- John, D. (2004), "Civic environmentalism", in Durant, R., Fiorino, D. and O'Leary, R. (Eds), *Environmental Governance Reconsidered: Challenges, Choices, and Opportunities*, MIT Press, Cambridge, MA, pp. 219-254.
- Johnson, A. (1994), "The biophilia hypothesis", *BioScience*, Vol. 44 No. 5, pp. 363-365.
- Kahnsari, M., Moghtader, M. and Yavari, M. (2003), *The Persian Garden: Echoes of Paradise*, Mage Publishers, Washington, DC.
- Karetzky, P. (1997), "The evolution of the symbolism of the Paradise of the Buddha of infinite life and its Western origins", *Sino-Platonic Papers (76)*, Department of East Asian Languages and Civilizations, University of Pennsylvania, Philadelphia, PA.
- King, R. (1979), *The Quest for Paradise: A History of the World's Gardens*, Whittet/Windward, Weybridge.
- Landsberg, S. (2003), *The Medieval Garden*, University of Toronto Press, Toronto.
- LeGates, R. and Stout, F. (2011), *The City Reader*, Routledge Press, Abingdon.
- Lehrman, J. (1980), *Earthly Paradise: Garden and Courtyard in Islam*, University of California Press, Berkeley, CA.
- Leopold, A. (1970), *A Sand County Almanac*, Ballantine Books Press, New York, NY.
- McBeth, W. and Volk, T. (2010), "The national environmental literacy project: a baseline study of middle-grade students in the United States", *Journal of Environmental Education*, Vol. 41 No. 1, pp. 55-67.
- McIntosh, J. (2005), *Ancient Mesopotamia: New Perspectives*, ABC-CLIO, Inc., Santa Barbara, CA.
- MacDougall, E. and Ettinghausen, R. (Eds) (1976), *The Islamic Garden*, Dumbarton Oaks, Washington, DC.
- Miller, D. (1996), *City of the Century: The Epic of Chicago and the Making of America*, Touchstone, New York, NY.
- Mitchell, D. (2003), *The Right to the City: Social Justice and the Fight for Public Space*, The Guilford Press, New York, NY.
- Nasr, S. (1987), *Islamic Art and Spirituality*, State University of New York Press, Albany, NY.
- Newman, P., Beatley, T. and Boyer, H. (2009), *Resilient Cities: Responding to Peak Oil and Climate Change*, Island Press, Washington, DC.
- Newport, F. (2013), "In US, four in ten report attending church in last week", Gallup Poll, available at: [www.gallup.com/poll/166613/four-report-attending-church-last-week.aspx](http://www.gallup.com/poll/166613/four-report-attending-church-last-week.aspx) (accessed February 19, 2016).
- Niemela, J. (1999), "Ecology and urban planning", *Biodiversity and Conservation*, Vol. 8 No. 1, pp. 119-131.
- Pickett, S., Cadenasso, M. and Grove, J. (2004), "Resilient cities: meaning, models, and metaphor for integrating the ecological, socio-economic, and planning realms", *Landscape and Urban Planning*, Vol. 69 No. 4, pp. 369-384.
- Qureshi, S. (2010), "Ecological disturbances due to high cutback in the green infrastructure of Karachi: analyses of public perception about associated health problems", *Urban Forestry and Urban Greening*, Vol. 9 No. 3, pp. 187-198.
- Register, R. (2002), *Ecocities: Building Cities in Balance with Nature*, Berkeley Hills Press, Berkeley, CA.

- Schuurman, F. and Van Naerssen, T. (Eds) (2013), *Urban Social Movements in the Third World*, Routledge, Abingdon.
- Schulz, M. (1985), *Paradise Preserved: Recreations of Eden in Eighteenth and Nineteenth-Century England*, Cambridge University Press, Cambridge.
- Slater, P. (2014), *The Chrysalis Effect: The Metamorphosis of Global Culture*, Sussex Academic Press, Eastbourne.
- Snyder, G. (1977), *The Old Ways*, City Lights Press, San Francisco, CA.
- Soulé, M.E. (1993), "Biophilia: unanswered questions", in Kellert, S. and Wilson, E. (Eds), *The Biophilia Hypothesis*, Island Press, Covelo, CA, pp. 441-455.
- Spretnak, C. (1991), *States of Grace: The Recovery of Meaning in the Postmodern Age*, Harper Press, San Francisco, CA.
- Sprugel, D. (1991), "Disturbance, equilibrium, and environmental variability: what is 'natural' vegetation in a changing environment?", *Biological Conservation*, Vol. 58 No. 1, pp. 1-18.
- Starkovsky, N. (2005), *The Koran Handbook: An Annotated Translation*, Algora Publishing, New York, NY.
- Stelter, G. (2000), "Rethinking the significance of the city beautiful idea", in Freestone, R. (Ed.), *Urban Planning in a Changing World: The Twentieth Century Experience*, Routledge Press, Abingdon.
- Swearingen, W. (2010), *The Environmental City: People, Place, Politics, and the Meaning of Modern Austin*, University of Texas Press, Austin, TX.
- Tabb, W. (2007), "Resource wars", *Monthly Review*, Vol. 58 No. 8, pp. 32-42.
- Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kazmierczak, A., Niemela, J. and James, P. (2007), "Promoting ecosystem and human health in urban areas using green infrastructure: a literature review", *Landscape and Urban Planning*, Vol. 81 No. 3, pp. 167-178.
- United Nations (2009), "Urban and rural areas", United Nations Department of Economic and Social Affairs, population division, New York, NY, available at: [www.un.org/en/development/desa/population/publications/urbanization/urban-rural.shtml](http://www.un.org/en/development/desa/population/publications/urbanization/urban-rural.shtml) (accessed February 14, 2016).
- University of Michigan News (2007), "Study identifies worldwide rates of religiosity, church attendance", available at: <http://ns.umich.edu/new/releases/1835-study-identifies-worldwide-rates-of-religiosity-church-attendance> (accessed February 19, 2016).
- Van Bruggen, A. and Semenov, A. (2000), "In search of biological indicators for soil health and disease suppression", *Applied Soil Ecology*, Vol. 15 No. 1, pp. 13-24.
- Wackernagel, M. and Rees, W. (1996), *Our Ecological Footprint: Reducing Human Impact on the Earth*, New Society Publishers, Gabriola Island.
- Whitford, W., Rapport, D. and DeSoyza, A. (1999), "Using resistance and resilience measurements for 'fitness' tests in ecosystem health", *Journal of Environmental Management*, Vol. 57 No. 1, pp. 21-29.
- Whittaker, R. (1953), "A consideration of climax theory: the climax as a population and pattern", *Ecological Monographs*, Vol. 23 No. 1, pp. 41-78.
- Wilson, E. (1984), *Biophilia: The Human Bond with other Species*, Island Press, Covelo, CA.
- Wilson, E. (2012), "E.O. Wilson takes a very long view of cities", *Partnership with New York City: Cities of Opportunity*, Price, Waterhouse, Cooper, New York, NY, pp. 24-29.
- Wilson, W. (1989), *The City Beautiful Movement*, The Johns Hopkins University Press, Baltimore.
- Wu, Z. (2010), "The road to social city: Howard's conception and the future of China's cities", *Urban Studies*, Vol. 9, p. 6.

- 
- Wu, Z. and Zhao, L. (2010), "The interpretation of Fei Hsiao-Tung and Ebenezer Howard's thoughts on migration flows and urbanization", *Urban Studies*, Vol. 9, p. 6.
- Young, I. (2003), "City life and difference", in Campbell, S. and Fainstein, S. (Eds), *Readings in Planning Theory*, Blackwell Publishing, Malden, MA, pp. 336-356.
- Young, R. (2009), "Interdisciplinary foundations in urban ecology", *Urban Ecosystems*, Vol. 12 No. 3, pp. 311-331.
- Young, R. (2010), "Managing municipal green space for ecosystem services", *Urban Forestry and Urban Greening*, Vol. 9, pp. 313-312.
- Young, R. (in press), "Modernity, postmodernity, and ecological wisdom: toward a new framework for sustainable urban planning", *Landscape and Urban Planning*.
- Yugas, A. (2015), "Muslim population in Europe to reach 10% by 2050, new forecast shows", available at: [www.theguardian.com/world/2015/apr/02/muslim-population-growth-christians-religion-pew](http://www.theguardian.com/world/2015/apr/02/muslim-population-growth-christians-religion-pew) (accessed February 19, 2016).
- Zhang, K. and Song, S. (2003), "Rural-urban migration and urbanization in China: evidence from time series and cross-section analyses", *China Economic Review*, Vol. 14 No. 4, pp. 386-400.
- Zhao, Y. (1999), "Leaving the countryside: rural-to-urban migration decisions in China", *The American Economic Review*, Papers and Proceedings of the One Hundred Eleventh Annual Meeting of the American Economic Association, Vol. 89 No. 2, pp. 281-286.

### Further reading

- Anderson, H. and van Kempen, R. (2001), *Governing European Cities: Social Fragmentation, Social Exclusion, and Urban Governance*, Ashgate, Surrey.
- Breslav, M., Berkowitz, A., Nilon, C. and Holweg, K. (2000), "Cities are ecosystems!: New trend to study urban areas", *Ecological Economics*, Vol. 32, pp. 337-339.
- Dalley, S. (2013), *The Mystery of the Hanging Garden of Babylon: an Elusive World Wonder Traced*, Oxford University Press, Oxford.
- Dawkins, R. (1996), *The Blind Watchmaker*, W.W. Norton Press, New York, NY.
- Hamblin, D. (1987), "Has the Garden of Eden been located at last?", *Smithsonian Magazine*, Vol. 18 No. 2, pp. 127-134.
- Hill, A. (1915), "The history and functions of botanic gardens", *Annals of the Missouri Botanical Garden, Anniversary Proceedings*, Vol. 2 Nos 1/2, pp. 185-240.
- Howell, M. (2014), "The logic of urban fragmentation: organizational ecology and the proliferation of American cities", *Urban Studies*, Vol. 51 No. 5, pp. 899-916.
- Janoschka, M. and Borsdorf, A. (2004), "Condominios fechados and Barrios privados: the rise of private residential neighborhoods in Latin America", in Glasze, G., Webster, C. and Franz, K. (Eds), *Private Neighborhoods. Global and Local Perspectives*, Routledge, London, pp. 1-28.
- Johnson, P. (2013), *The Birth of the Modern*, Harper Collins, New York, NY.
- Low, S. (2006), "Towards a theory of urban fragmentation: a cross-cultural analysis of fear, privatization, and the state", *Cybergeo: European Journal of Geography*, Dossiers, document 349, Systemic impacts and sustainability of gated enclaves in the city, Pretoria, February 28-March 3, 2005.
- Stables, A. and Bishop, K. (2001), "Weak and strong conceptions of environmental literacy: implications for environmental education", *Environmental Education Research*, Vol. 7 No. 1, pp. 89-97.

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