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Edited by Francesco Ferrini,
Cecil C. Konijnendijk van den Bosch
and Alessio Fini

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SOCIAL ASPECTS OF URBAN FORESTRY AND METRO NATURE

Kathleen L. Wolf

Introduction

As the world has become more urbanized, planning, social justice, and public health professionals are paying more attention to outdoor place, space, and environments as human habitat. The accelerating pace of research focused on human experiences of nearby nature is remarkable. Studies reveal a complex array of human-with-nature interactions, with many being quite beneficial, and these range in scale from the individual, to household, neighbourhood, and broader community. Physical surroundings in cities, including nature, have received greater attention as important determinants in human relationships and community conditions.

This chapter highlights how city trees and green space serve as a formative, and often supportive backdrop for social benefits ranging from personal development to more liveable, safer communities. Urban nature in all its forms – including urban forests, parks, greenbelts, streetscapes, green space, and green infrastructure – is referred to here as metro nature. Studies about humans and their communities may be less tangible than the science of biophysical effects, as people are highly mobile, and exist in complex situations having multiple influences on outcomes. Nonetheless, social sciences, humanities, and public health research methods reveal underlying responses and correlations, though causal underpinnings of outcomes are more difficult to confirm. Despite the challenges of studying the most complex species on the planet, evidence-based interpretations and inferences point to why all people need metro nature in their lives in order to attain better quality of life, and to engage with other people in more constructive and productive ways.

Economic values

An important and often prominent concern in urban forestry planning and management is the question of value (see Chapter 11). Metro nature provides a range of benefits and services, most of which are not readily bought and sold. Yet communities often invest in public goods that members of society accept as providing value, such as education or emergency response systems. Estimating the values of nature's services helps local governments to weigh costs

against returns from development or prioritize payments for green versus grey infrastructure. Without some indicator of economic value, there may be little financial incentive to consider urban nature in land-use decisions, market transactions, and capital investment budgets.

Residential properties

Hedonic pricing has been used extensively for residential property valuation (Wolf, 2007). Property sales prices or assessments are statistically regressed against home and property characteristics to estimate how a difference in a natural feature relates to a change in property value. Mature yard trees can contribute 2–15 percent to home value, and tree canopy in neighbourhoods has been found to increase value 6–9 percent. Tree retention in new development is often claimed to be expensive yet parcels having mature trees are found to have up to 22 percent higher market value. The 'proximate principle' describes how properties near naturalistic open spaces are typically valued at about 8 percent to 20 percent higher than comparable properties, with the effect observable up to a half mile away. Property value gains can be captured by local governments as increased property tax assessments or as excise taxes on sales, with the revenues applied to the annual costs of urban forest or parks programs. A study in Portland, Oregon US, found that the aggregated pricing effect of street trees on all houses yielded a potential boost in annual property tax revenues of USD 15.3 million (Donovan and Butry, 2010).

Figure 5.1 The presence of trees in parks, in streetscapes, and in yards may boost the market value of residential properties

Source: Guy Kramer

Retail and consumer environments

Business owners are often quite influential in communities, and their outlook on green investments can set the tone for tree program support in local government. Merchants are able to tally the direct costs of trees (such as pruning and debris clean up), but may not recognize shoppers' values. Consumer response to urban forests was the focus of a series of studies about central business districts (Wolf, 2005). Visual quality scores were lower for streetscapes without trees and much higher for places with trees. Study respondents also reported that they would be willing to pay from 9 percent (in small cities) to 12 percent (in large cities) more for a set of goods and services in a place having well-maintained trees.

What might contribute to the positive responses to trees? Retail marketers use 'atmospherics' to set the stage for desired shopper behaviours. Colour, light, product placement and other indoor strategies influence purchase choices. Trees are an outdoor atmospheric that sets up favourable impressions, including cues about social interactions. Shoppers buy things to satisfy needs, and also enjoy positive experiences with friends and family. The streetscape can be a welcoming, interesting place, and shape consumer expectations before even entering a store.

Nature and community

Purchases of properties or goods are an important contribution to local economies. But market transactions don't capture the diversity of human experiences and interactions related to metro nature. People are directly dependent on nature for life's necessities, such as clean air and water. Yet the presence of nature sustains people in more subtle, yet very important ways. Studies have spanned the social scale, ranging from individuals, to households, to communities, and include people/plant relationships that are fundamental to basic functioning and quality of life. Trees and the urban forest are a prominent presence in the places where people come together, social interactions occur, and relationships or partnerships take form. Green spaces can be the settings where social cohesion and increased community capital emerge, particularly if people share work on a project or goal.

What is 'community?'

People in cities often gather in public spaces to accomplish goals, relax and play, learn, or enjoy an activity. It is around these multiple interactions that social community takes shape. Early on, sociologists defined 'community' as a group of people living and interacting within a geographical boundary, such as a workplace or a school. The definition has since expanded to include any interrelatedness of individuals, whether physically near each other or not. It includes a social group of any size that shares beliefs, values, interests, intentions, needs, or place and is encouraged by social exchanges. Community may also form around purpose; it can be a collection of people with differing but harmonious views, skills, perceptions, or shared interests who can, with some support (e.g. funding, professional advice, or membership), develop in a cooperative way to achieve valued outcomes. For example, several business communities, both place and interest based, were collaborators in the trees and retail research described earlier. These groups of individuals shared economic interests, and developed programs to support their connections, such as shared tree care.

The concept of community has many expressions (Peters et al., 2010). *Social interactions* are the formal or informal opportunities for people to develop interpersonal relationships. Casual social encounters and interactions in day-to-day life leads to feelings of acceptance and

Figure 5.2 Forested parks are the places in cities where casual social encounters can happen, leading to improved social cohesion

Source: Guy Kramer

sense of belonging. *Social cohesion* is the interdependence between members of a community, experienced as shared values, loyalties, and cooperation. An absence of social cohesion is indicated by feelings of loneliness and not being able to call on others for social support. Public spaces, particularly parks and gardens, offer opportunity for open interactions between people of different backgrounds, helping to develop cohesion and alleviate tensions.

Finally, *social capital* is loosely defined as the 'glue' that holds a community together (Putnam, 2000). It emerges within networks of social relations that are characterized by norms of trust and reciprocity, and a shared give-and-take for mutual benefit. Increased social capital can strengthen and enhance community wellness. Also, individuals can further their own goals by enhancing social capital and relationships. Social capital makes it possible to achieve things that cannot be accomplished solely by individuals, and makes community-oriented goals possible.

Benefits of social ties

Why would community leaders and natural resources managers be interesting in encouraging interaction, cohesion, and increased social capital?

Social relationships are important to individuals in all cultures and at all times throughout their lives. Individuals and groups within communities with strong social cohesion and social capital experience many positive benefits, that are expressed as community wellness (Wood and Giles-Corti, 2008; Elands et al., in press). For example, children and youth in close-knit communities are less likely to participate in health-threatening behaviours such as smoking, drinking, gang involvement, or drug use. Stronger neighbourhood social ties provide more

available adult guidance and positive role models. Also, elderly individuals with strong social connections have lower rates of early mortality, reduced suicide rates, less fear of crime, and better physical health. Lack of social interactions and loneliness is associated with a range of human health concerns (Holt-Lunstad et al., 2015). The role of social aspects in health is substantial; social isolation contributes to mortality and illness at the same scale as smoking and other medically-confirmed risk factors.

Strong community relationships may prompt individuals to work together to achieve common goals (e.g. create clean and safe public spaces), to exchange valuable information, and to maintain informal social controls (e.g. discourage crime or other undesirable behaviours), all of which can directly or indirectly influence personal health (Semenza and March, 2008). Communities in which residents experience frequent interactions, high mutual trust, and social reciprocity have been linked with lower homicide rates and less crime (Bellair, 1997). Conversely, neighbourhoods lacking social cohesion and community connectedness have been linked to higher levels of social disorder, leading to personal anxiety, and depression (Ross, 2000).

Nature for community

Metro nature plays an important role in creating the vital neighbourhood spaces that enable more diverse and stronger social ties. It is likely that many of the well-being benefits that are associated with experiences of greenspace are partly mediated through people's local social interactions (de Vries et al., 2013). The associations between social relations and social health

Figure 5.3 The presence of trees and quality landscape can encourage more use of outdoor spaces and the social activity within them

Source: Kathleen Wolf

(as well as individual mental and physical health) are now being more thoroughly explored, including how greenspace can be planned and managed for greater benefit for diverse people and groups (Dinnie et al., 2013).

Early studies of social strengths tended to focus almost exclusively on human-to-human interactions. Yet the physical configuration of place influences the extent and richness of social contacts. People prefer natural over hardscape settings, and preferences may be predictors of the use of environments. The presence of trees, parks, and gardens is related to the rate of use of outdoor spaces, the amount of social activity that takes place within them, and the proportion of social to non-social activities they support. The quality of the space matters, as more beautiful nature is associated with more positive social behaviours (Zhang et al., 2014).

In studies of US public housing (Kuo, 2003), spaces with trees attracted larger groups of people – as well as more mixed groups of youth and adults – than did spaces devoid of natural elements. The presence, number, and location of trees strongly predicted the amount of time that inner-city residents actually spent in outdoor common spaces. Residents reported that they disliked and feared treeless, empty common spaces. Additionally, the more time people spent in this common space, the better they knew their neighbours and the greater their sense of community. Also, inner-city parks that are well-maintained and provide good recreational facilities encourage the social interactions that lead to social ties (Kaźmierczak, 2013).

Such findings span cultures and life-cycle. In the Netherlands, parks have helped generate social cohesion; people of diverse ethnic groups mingle there, forming cross-cultural social ties (Peters et al., 2010). Aging adults report a stronger sense of unity among residents, experience a stronger sense of belonging to the neighbourhood, and feel that neighbours are more supportive of one another compared to individuals who have less exposure to green common spaces (Kweon et al., 1998). As people get older, they are generally less mobile, thus having metro nature in their direct living environments is increasingly important.

Civic environmental stewardship, such as the engagement of volunteers to care for trees and landscapes (see also Chapter 15), can promote social connections. Inner-city residents who spend time in outdoor common spaces caring for flowers, grass, or trees outside of their homes have stronger social networks with their neighbours. A study of beautification projects found increased perceptions of social capital among community members, as people felt more connected with and trusting of their neighbours (Alaimo et al., 2010). Stewardship Mapping ('Stew-Map') is a US Forest Service protocol to inventory stewardship organizations. Results reveal the aggregate activity footprint across a region or metropolitan area, as well as social network linkages (Svendsen et al., 2016). Community greening projects enhance relationships among people, increase community pride, and can serve as a catalyst for broader community improvements.

Place attachment

Connections to place

Certain terms are commonly used in public discussions about urban nature settings. Space, for example, is the physical dimension of the outdoors, represented on maps and in planning documents. It is defined in cities by buildings, paving, or vegetation. Space is transformed into 'place' when humans give it bounds and believe it has value. Place is constructed and reconstructed over time by different groups of people (Tuan, 1990). Perceptions of place, or *sense of place*, are ever-changing, depending on social interactions, context, and events. In cities social communications can make and unmake places, elevating or diminishing the

appeal of a site or business. This process has been accelerated by internet communications and crowdsourced inputs, such as online reviews.

Often taken for granted, individuals and groups may have significant relationships to place, expressed in several ways (Manzo and Devine-Wright, 2013). *Place attachment* is a personal bond with a location or landscape on an emotional level as an individual or as a member of a community. It can emerge from certain physical conditions, characteristics of people, or events. *Place identity* is attachment based on emotional or symbolic meanings. The physical landscape or place becomes part of a person's self-identity, perhaps due to childhood or significant personal experiences. *Place dependence* is an attachment based on function. The value of a specific place depends on its ability to satisfy the needs or behavioural goals of an individual or group (such as a community garden).

A similar notion is *topophilia*, the affective bond between people and place or setting. A strong sense of place is often blended with the sense of cultural identity for certain groups, or may simply be an individual's love of certain aspects of a place. As Tuan described, 'diffuse as concept, vivid and concrete as personal experience, the emotional human relationship to landscape is elusive' (Tuan, 1990). The bonds that a person or community feel toward a space may contribute to both market dynamics and social conditions of a community. Interestingly, neuroscience research suggests that response to place constitutes a distinct dimension in mental processing.

Nature attachment

Early research on place attachment and meaning focused on rural, scenic, and residential settings. Yet nature is a part of preferred and meaningful urban places in terms of aesthetics, restorative effects, active use and value, attraction to the familiar, and emotional importance (Kaplan, 1995). Individuals seek natural environments as places to process personal circumstances, and consider goals and priorities. Urban forests and parks can be places of refuge, where one can recover from urban-associated mental fatigue. People become attached to peaceful, restorative green spaces that offer mental and physical respite and may come to depend on them to fulfil health needs, and so incorporate them into their self-identity (Stoner and Rapp, 2008).

Social interactions and shared cultural values of groups are also a part of how attachment forms (Kuo, 2003). The presence of urban nature contributes to greater neighbourhood satisfaction. Increased casual interactions contribute to shared sense of place. Nature's amenities encourage people to spend more time outside, creating stronger social ties and friendships with neighbours through spontaneous face-to-face encounters.

Active engagement outdoors, such as food forest projects or urban foraging, can also strengthen connection to place. Participants may experience a sense of accomplishment, greater community development, and strengthened intergenerational ties. As places gain more social significance, the interdependence between social and physical components increases, binding groups to particular places.

Emotion is central to the formation of place attachment and reinforces relationships between individuals and their environment. Childhood, particularly middle childhood, appears to be a formative time for place attachment. Feelings of connection or belonging initiated at an early age tend to become stronger in later years (Morgan, 2009). Adult remembrance of childhood place can invoke vivid memories and emotional connection, based on experiences of play, adventure, and freedom. Memories from childhood may thus be particularly meaningful.

Sites of loss or tragedy often emerge as places of attachment and self-identity, such as former battlefields or other sites associated with pain or grief. A study of community-based memorials created by victims of the 11 September 2001 terrorist attacks in New York

City ('9/11') found that memorial locations served three core social functions – a place to remember and honour victims, a location for special tribute events, and a sacred space (Svendsen and Campbell, 2010).

Relationships with place can lead to heightened sense of environmental and social responsibility. Stewardship for both public and private lands are acts of caring. Projects within meaningful natural environments can boost volunteer rates for environmental stewardship. People who experience an emotional affinity with nature and perceive natural environments as restorative are more likely to protect natural spaces and engage in pro-environment activities (Zelenski et al., 2015). Frequency of visitation to a natural area can also increase place identity as well as sense of environmental responsibility. At times such connections can be problematic for managers, as people protest change in cherished landscapes, such as the removal of hazard trees.

Crime and safety

Acknowledging potential dis-services is important for effective resource planning and management (see Chapter 12). In some communities metro nature may be implicated as a setting or screen for criminal activity. A limited number of studies addresses the relationship between urban vegetation and crimes, aggressive behaviour, and safety. Findings are not conclusive and even may appear conflicting, yet there are patterns within. Both frequency and type of crime are influenced by the physical characteristics of a space or community. Nature affects the local sociology of security, fear, and crime (Kondo et al., 2017).

Figure 5.4 Civic stewardship of the urban forest can increase forest health, enhance meaning of landscapes, and make communities more secure

Source: Kathleen Wolf

Aggression, violence, and crime

Residents of lower income housing in Chicago reported less graffiti, vandalism, and littering in outdoor spaces containing trees and grass than in more barren spaces. Incidents of social disruption and incivilities, such as the presence of noisy individuals, loitering strangers, and illegal activity, were also less in planted areas. Women who had trees and grass cover outside their apartments reported significantly less aggression against their partners than did those living in un-landscaped areas; for all residents, 25 percent fewer incidents of domestic violence were reported for landscaped homes compared to those having barren surroundings (Kuo, 2003).

Two years of police data on property and violent crimes within the same public housing communities showed fewer total crimes for buildings having greener surroundings (while including other crime predictors in the analysis). Buildings having high levels of vegetation recorded 52 percent fewer total crimes, 48 percent fewer property crimes, and 56 percent fewer violent crimes than buildings with low levels of vegetation (Kuo, 2003).

A study of residential subdivisions in Florida found that the more abundant the vegetation around a house, the less frequently property crimes occurred. Another study of residential properties in Portland, Oregon, found that trees in the public right-of-way were generally associated with a reduction in crime. The effect of trees on crime rates on house lots was mixed; smaller, view-obstructing trees tended to increase crime, whereas larger trees reduced crime (Donovan and Prestemon, 2012).

Fear and visibility

Safety can be judged objectively, as measured by facts and reports, and subjectively as personal perceptions and inferences (Nasar and Jones, 1997). Perceptions influence behaviour and people will avoid places they associate with personal risk. Large shrubs, underbrush, and dense woods can diminish visibility and view distances. Impressions of crime likelihood (irrespective of actual crime rates) can lead people to choose to not enter public spaces, retreat within their homes, and cease on-street socializing.

Managers must consider how to integrate public safety into the planning and management of urban parks, forests, and green spaces. The practices of crime prevention through environmental design (CPTED) rely upon a combination of built, social, and administrative strategies to reduce the circumstances that precede criminal acts. Some law enforcement guidelines focus only on the offender, but CPTED integrates physical environment influences that enable or deter crime.

Vegetation can be retained and managed to reduce perceived and actual risk. A site can support both trees and visibility. A more open understory that provides adequate sight lines increases perceived safety in green spaces. This does not require a landscape devoid of understory, but rather suggests that managers should be sensitive to where they place and how they manage vegetation, in response to personal safety concerns.

Caring for place

Crime behaviour is the result of a complex blend of social, genetic, and environmental factors. Direct interventions (such as more police patrols, or higher arrest rates) are strategies that may first come to mind. Research indicates that metro nature management is another effective strategy (Kondo et al., 2017). Physical features and layout influence patterns of informal contacts among users and residents.

Defensible Space is the notion that vital, well-used spaces aid the development of the neighbourhood social ties that can 'defend' a place against crime (Kuo, 2003). The presence of trees can influence the extent to which residents use and 'take ownership' of residential outdoor spaces, and discourage crime perpetrators. Well-maintained vegetation, including tree canopy, can act as a territorial marker and cue to care, suggesting that inhabitants pay attention to their home territory and that an intruder would be noticed and confronted. Active community garden sites or adopt-a-park projects send similar crime prevention signals.

Neatness counts! Signals of poor maintenance and neglect (such as litter and graffiti) decreases perceived security in urban parks and neighbourhoods. Positive social messages are conveyed by well-tended, orderly settings. A disorderly environment sends messages that no one cares or will challenge crimes within, thus increasing residents' general fear, weakening community controls, and inviting criminal behaviour. Cleaning up vacant lots and overgrown properties, a transformation of neglected space, has positive affects in reducing vandalism, burglaries, and gun crimes.

Mental state and civility

Positive social interactions are dependent in part on the mental health of individuals. Urban lifestyles include many irritants – such as crowding, high temperatures, and high levels of noise. Such conditions may compromise a person's mental capacity to cope and function (Bratman et al., 2012), and are linked to increased aggression and violence.

Attention restoration theory

The information processing demands of everyday life – e.g. traffic, phones and texting, difficult tasks at work, and complex critical decisions – all take their toll on mental capacities. The resulting mental fatigue is characterized by inattentiveness, irritability, and short attention span. Chapter 6 of this handbook introduces attention restoration theory (ART; Kaplan, 1995). The theory describes how nearby nature settings or features can enable attentional recovery and restore cognitive function.

Studies demonstrate links between green spaces and higher performance on attentional tasks in public housing residents, AIDS caregivers, cancer patients, college students, prairie restoration volunteers, and employees of large organizations (Mantler and Logan, 2015). In one study, participants showed a 20 percent improvement on attention performance after a 50-minute walk in nature, versus a highly built downtown setting. Studies of children link access to urban parks and green outdoors spaces with reduced attention-deficit hyperactivity disorder (ADHD) symptoms (Taylor and Kuo, 2006).

Attention fatigue can be experienced when living in a dangerous setting, with a difficult person, or without enough resources to meet one's needs. Mental fatigue may be compounded by health or family concerns. The result is compromised mental health, not only in the clinical sense, but in reduced capacity to avoid impulsive decisions and identify appropriate solutions. If a person is unable to restore their mental coping capacity they may not be patient in their interactions with loved ones, or may be less able to process the important information needed for good choices.

Social interaction effects

Effective information processing plays a central role in managing social situations, especially in avoiding potential conflicts. In problematic social situations, it takes more reasoning and

effort to engage in solution-oriented behaviour. Three psychological factors – impairments in cognitive processing, irritability, and impulsivity – have been linked to aggression. Mental fatigue can contribute to outbursts of anger and even violence. Having nearby nature for respite and restoration can contribute to better coping by individuals, and more civil interactions in communities.

Metro nature and equity

The scientific evidence pointing to the health and wellness benefits of exposure to urban green space has expanded greatly in recent years (Wolf, 2016; Wolf and Robbins, 2015). Yet there are racial, ethnic, and socio-economic disparities in access to metro nature in some cities. Discrepancies between socioeconomic groups and the locations of public lands began as early as the nineteenth century in industrialized cities. Political, social, and economic processes over the years have frequently put less affluent groups at a green space disadvantage.

Amenity access

Urban park access generally varies across US cities. In the early 2000s, only 33 percent of residents in LA lived within a quarter of a mile of a park, compared to 97 percent in Boston and 91 percent in New York (Trust for Public Land, 2004). In addition, advances in remote sensing analysis have revealed disparities in the density and quality of urban forest canopy cover associated with neighbourhood income levels, race, and ethnicity. Figure 5.5 shows differences in canopy distribution across communities in one US state (in 2008).
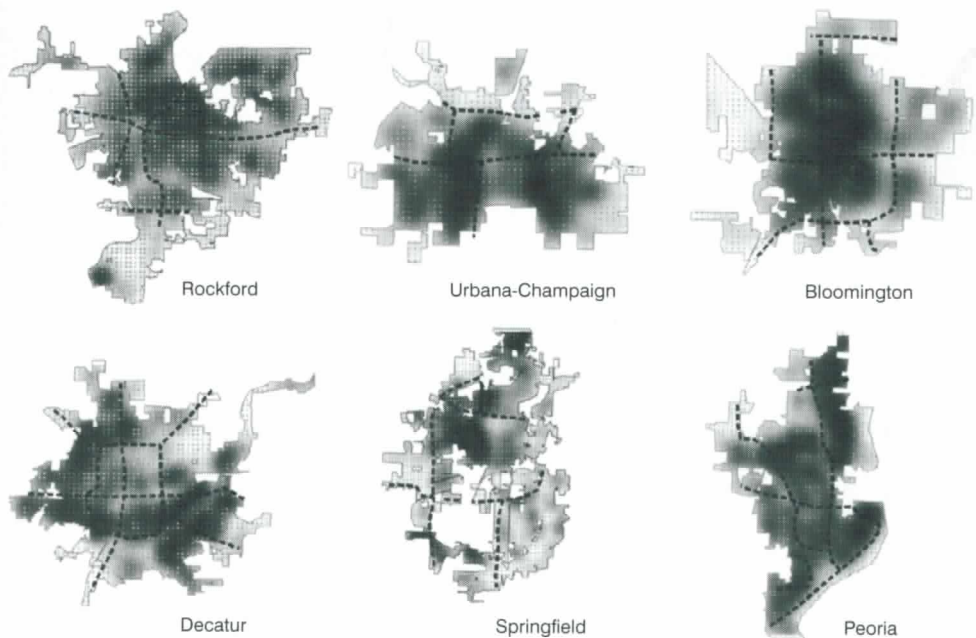

Figure 5.5 Spatial distribution of tree canopy in six cities in the state of Illinois, USA

Source: Reprinted from Zhou and Kim (2013), with permission from the publisher

The study found significantly less canopy in areas populated by a greater number of African Americans in all but one city. And neighborhoods having more residents with college degrees and higher household income were often associated with more tree canopy (Zhou and Kim, 2013).

Larger green spaces provide the greatest health benefits, but large parks also appear to be less prevalent in more deprived neighbourhoods. Having fewer, smaller parks can affect the level of benefit. High neighbourhood density and persons-per-park-acre counts can lead to congestion and overuse, diminishing benefits. In a Baltimore study, areas with higher persons-per-park-acre were more frequently found in predominately African American neighbourhoods versus white neighbourhoods (Boone et al., 2009).

Vacant lots mar some low-income neighbourhoods, and some communities have programs to clean up and repurpose unused properties. One study found that walking near 'greened' vacant lots significantly decreased heart rates, suggesting that remediation of neighbourhood blight may diminish physical stress and improve health (South et al., 2015). Other studies have found reduced crime and increased resident perceptions of security following vacant lot improvements, in addition to increases in market value for adjacent properties.

Health effects

Researchers usually control for socio-economic status when studying nature effects, as there are other health advantages in affluent neighbourhoods (e.g. better nutrition and health care access). Green surroundings may actually reduce socio-economic health inequalities. Testing the relationship, one study of people with low income and high levels of residential greenery had similar mortality rates to people having higher socio-economic status. However, when low income was associated with little surrounding green space, higher mortality rates were found (Mitchell and Popham, 2008).

Nature-based positive effects may actually be amplified in lower-income, inner-city communities. Poverty is related to poorer health across the human life cycle, from children to elders. Crowding, noise pollution, and the increased threat of crime in poorer urban neighbourhoods contribute to chronic mental fatigue. As described earlier, nature's restorative benefits can help people regain mental capacity and be better prepared to cope. Contact with nature by those in deprived urban neighbourhoods has been linked to residents' lower perceived stress and improved physiological stress recovery (Roe et al., 2013).

Displacement concerns

Addressing inequalities by introducing new parks and tree plantings must be done carefully (Wolch et al., 2014). As described earlier, proximity to parks and trees in streetscapes are correlated with increased property values. Neighbourhoods near large tracts of open lands or parks are frequently unaffordable to low-income households, reinforcing the trend of inequity in access to neighbourhood green space. Similarly, newly built parks in lower socio-economic communities may contribute to gentrification by increasing property values and displacing the less affluent as their neighbourhoods become less affordable. Programs designed to offer free or low-cost trees for homeowners in cities around the US may exacerbate inequalities, as low-income residents are less likely to participate in the programs (Donovan and Mills, 2014). Such trends are complex, and with careful planning communities can work successfully to green their neighbourhoods, plant trees, and close the metro nature and health equity gap.

Cultures and communities

Having community gardens and tree plantings contributes to the quality of life of minority ethnic groups, by creating places for culturally significant gardens and planting – strengthening a sense of community and tradition (Shimada and Johnston, 2013). Yet, it is important to recognize that there are potential differences between various ethnic and cultural groups concerning their preferences for nature experiences. Culturally-dominant ideals of nature often are expressed in planning and design, potentially overlooking preferences of minority users. Participatory planning and design strategies are important, including direct outreach to diverse user groups (see also Chapter 17).

Various cultural groups may differ in their preferences for the character of nature in parks and activities during visits (Ho et al., 2005). African Americans may prefer developed recreation facilities over less managed, naturalized settings. In a study of park users in Chicago, Caucasian visitors were twice as likely as Asian visitors to use the park alone, and were also less likely to visit a park with extended family or with an organized group. Large shaded picnic areas, play equipment, water features, sanitary facilities, and open-air vendors or cafes increase attractiveness of parks for Hispanic users.

A green space between racially or socio-economically distinct neighbourhoods can act either as a barrier, creating a boundary, or a magnet and place of social inclusion for different cultural groups. With intentional design and planning, green spaces can further integrate different ethnic and racial groups. Some factors that actively encourage park use by a range of groups include community and neighbourhood group activities, visible trails and play areas on the perimeter to attract people further into the park, a range of facilities to attract diverse users, programs that reflect cultural traditions, and responsive park maintenance and management.

At a more conceptual level, the residuals of tree and nature symbolism may enter the interactions of green space users. Trees can become symbolic representations that trace territory and memory, even conflict (Shimada and Johnston, 2013). Trees embody expressions of age, resilience, and productivity. Forests and trees represent popular stories and meanings in the cultures of many nations, in the east and west. Trees are even present in the discourse of conflict. In the ongoing Israeli–Palestinian conflict, landscapes of pine and cypress grow alongside olive groves, symbolizing counter claims to the land. Forest destruction has often come to symbolize the devastation of war, such as the cleared battlefields of Europe in World War I or the US military's chemical destruction of extensive forests during the Vietnam War. Recognizing imbedded associations is an important part of participatory design for new tree plantings in parks, gardens, and streetscapes.

Conclusion: Nature and resilience

This chapter started with the more straightforward expression of value, the market-based monetization of properties and goods. Yet there are other complicated and meaning-filled values associated with outdoor spaces. Values emerge from direct experience of metro nature, but are also formed during the social interactions that take place within spaces and across time. This chapter offers interpretations of both early and recent notions about the social aspects of nearby nature experiences, including trees and forests.

Some of the most recent insights about social aspects are addressing resilience. The term, similar to sustainability, is defined in many ways, depending on context and spatial scale. Fostering resilience in the face of uncertainty and risk has become the focus of policy and decision makers. Urban areas have become resilience laboratories as they are centres of both

impact and innovation. Landscapes and natural resources are increasingly valued as buffers that protect human populations against chronic stress or acute shock – coastal wetlands to mitigate storm surges, green infrastructure to manage water quality, or urban forest canopy to reduce extreme heat effects. But these biophysical processes and outcomes are just one aspect of resilience goals. Community-based responses also contribute to relief and recovery from threats.

Event response

'Urgent biophilia' refers to intentional, purposeful contact with green space that people seek to summon and demonstrate resilience in the face of a crisis (Tidball, 2012). The affinity that humans may have for nature (biophilia), the process of remembering valued landscapes, and the urge to create restorative environments often emerges in the face of challenges. People, as individuals and as communities, often seek engagement with nature, working together to restore the built environment and sustain memory, including tree plantings, parks, and memorials.

Stewardship activity, in particular, can foster community resilience (Svendsen et al., 2014). Local, community-based organizations, such as environmental, community garden, and urban forestry non-profit groups, can activate their established networks and capacities to respond in times of crisis, becoming 'first responders' following a disaster. Such groups have learned to adaptively address multiple needs in their communities. In times of disturbance the persistent, trusted, and networked relationships of community-based organizations can be mobilized to meet immediate community needs. Social resilience depends upon connectedness and innovation, and day-in and day-out nature-based experiences and interaction encourage locally relevant and resourceful response.

Resilient communities

At the individual scale, major disruptions can bring on attention overload. Nature encounters offer the space and cognitive support to review one's circumstances, consider solutions, and make choices that can better the situation of self and loved ones. The nature places where a person has developed a sense of attachment may be particularly supportive as a person seeks to understand and cope. And being within spaces where one feels secure and is not fearful of personal harm also support individual and group activities of recovery.

From casual interactions to organized events, urban green spaces can be the neutral ground where people gather and informal relationships can take form, including opportunities for people from different backgrounds and diverse cultural origins to connect socially. Based on the character of the space and the program of activities that happen within, community building and increased social capital can emerge, particularly if people share work on a project or goal. A sense of connectedness fosters greater trust and cooperation among individuals, potentially leading to greater community resilience in the face of adversity.

It's been said that change is the new normal. In the face of (sometimes rapid) social, political, economic, emotional, and psychological change, green spaces provide respite on many levels. The social cohesion that emerges in both passive nature encounters and stewardship activities enables emergent social systems, that can become the social infrastructure of resilience. As communities face both challenge and stability, trees, forests, and metro nature generally, are ever more important in our urbanizing world. These resources support the social aspects of economic value, social cohesion, place attachment, safety and security, and mental and physical health, and should include attention to diversity and equity.

Figure 5.6 Trees in cities provide many social benefits – only possible if the urban forest is managed and sustained by local policy and programs

Source: Kathleen Wolf

Acknowledgements

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