



Research paper

'It's real, not fake like a park': Residents' perception and use of informal urban green-space in Brisbane, Australia and Sapporo, Japan



Christoph D.D. Rupprecht^{a,b,*}, Jason A. Byrne^{a,b}, Hirofumi Ueda^c, Alex Y. Lo^d

^a Environmental Futures Research Institute, Griffith University, Nathan 4111, QLD, Australia

^b Griffith School of Environment, Griffith University, Gold Coast 4222, QLD, Australia

^c School of Design, Sapporo City University, Sapporo 005-0864, Japan

^d The Kadoorie Institute, University of Hong Kong, Hong Kong, Hong Kong

HIGHLIGHTS

- Over 80% of respondents knew of informal greenspace in their neighborhood.
- 52% of respondents in Brisbane and 31% Sapporo used IGS for recreation.
- Reasons for use: proximity, diverse flora/fauna, no use restrictions or crowding.
- Influence of demographic factors on IGS use and evaluation was limited.
- Cultural and geographic context may explain different IGS evaluation and use.

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ABSTRACT

Urban parks and gardens may be failing to meet the diverse “nature needs” of a growing global urban population. Informal urban greenspace (IGS) such as vacant lots, street or railway verges and riverbanks may provide space for unstructured recreation and nature contact. Yet we know little about residents' relationship with IGS outside of Europe and North America, what factors influence IGS use and evaluation, or what role geographic and cultural context play.

Our paper combines qualitative and quantitative methods to examine how residents in Brisbane, Australia ($n = 123$) and Sapporo, Japan ($n = 163$) perceive, evaluate and use IGS. Using statistical methods (e.g. correlation analysis) we analyzed what factors influence how respondents interact with IGS, including the amount of formal greenspace within 500m of survey locations using a GIS buffer analysis. Results were tested for differences and similarities between the cities.

We found that respondents knew of IGS in their neighborhood (>80%), appreciated and used it (>30%), but more respondents in Brisbane used and appreciated IGS. The influence of demographic factors and local formal greenspace area was limited, but respondents' attitude towards urban nature was correlated with IGS evaluation. Littering was perceived as IGS' most common problem (90% of respondents), but was reported by <20% of IGS users. Geographic (e.g., IGS type prevalence) and cultural (e.g., human-nature relationship) contexts represented potential influence factors. We argue that the liminal nature of IGS (e.g., liability) management poses a challenge traditional greenspace planning. To address this problem, further research should explore participatory management approaches.

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1. Introduction

Do parks and gardens in cities meet the diverse ‘nature needs’ of growing global urban populations? An increasing body of recent research suggests the answer may be ‘no.’ Urban residents' greenspace needs include contact with nature, encountering beauty, relaxation, and recreation (Matsuoka & Kaplan, 2008). Recent research suggests that ‘formal greenspaces’ (like parks) may not be sufficient to meet some residents' needs, especially in more dense environments (Byrne, Sipe, & Searle, 2010; Ward Thompson,

* Corresponding author at: Room 3.16, Building G31, Griffith University, Gold Coast 4222, QLD, Australia. Tel.: +61 7 5552 9340.

E-mail addresses: christoph.rupprecht@griffithuni.edu.au (C.D.D. Rupprecht), jason.byrne@griffith.edu.au (J.A. Byrne), h.ueda@scu.ac.jp (H. Ueda), alexloyh@hku.hk (A.Y. Lo).

2012). In such circumstances, city dwellers can be forced to travel long distances if they want to access regional open spaces to compensate for deficient local greenspace (Næss, 2005). Yet some residents will be unable to travel due to time, financial cost, or disability (Maat & de Vries, 2006). Moreover, local governments may lack the finances and/or space necessary to develop new urban parks. Although researchers have shown that small pocket parks can be valuable, some cities may lack even these spaces. And pocket parks cannot satisfy active recreation needs (Nordh & Østby, 2013; Peschardt, Schipperijn, & Stigsdotter, 2012). What options are available then to address the problem of greenspace deficiency?

Scholars have recently begun looking toward what might be called informal urban greenspace (IGS), urban wildscape or 'terrain vague'—in other words 'ambiguous spaces of the city'—for potential solutions (Barron & Mariani, 2013). IGS includes for example vacant lots, brownfields, street or railway verges (i.e. nature strips) (Campo, 2013; Jonas, 2007; Jorgensen & Keenan, 2012; Kremer, Hamstead, & McPhearson, 2013; Rupprecht & Byrne, 2014a; Schneekloth, 2007). In a recent special issue on vacant urban land in the journal *Cities*, researchers have discussed the socio-cultural and ecological opportunities of abandoned or left-over spaces, including the Petite Ceinture railway circuit in Paris (Foster, 2014), community gardens and vacant lands in the USA (Drake & Lawson, 2014), and opportunities to use private property in North Denver for public purposes (Langegger, 2013).

In a recent systematic review (Rupprecht & Byrne, 2014b), we discuss the character of IGS and note that the informal, often unintentional formation of these spaces, and their uncertain legal, socio-economic, and ecological status give them a liminal quality. We have found that IGS nevertheless appears to play an important role for urban residents and is emerging as an important topic in urban greenspace research. Our review shows that residents can distinguish between IGS and formal greenspace, and cherish the unique features of IGS. Some residents use IGS as recreation spaces (Platt, 2012; Unt, Travlou, & Bell, 2013), benefiting from the flexibility and freedom of restrictions conferred by the 'indeterminacy of loose space' (Franck & Stevens, 2007). However, we also note that researchers have found that residents' relationship with IGS is complex and sometimes contradictory—negative cultural associations of 'vacancy' and/or decrepitude (Corbin, 2003) may mean that the full potential of IGS to meet urban residents' needs remains unrealized (Rink & Herbst, 2011). Residents appear to prefer a medium level of human influence, because they dislike uniform and highly artificial spaces, but may also prefer a certain level of maintenance (Rupprecht & Byrne, 2014b). However, IGS is relatively understudied and our understanding of the factors and processes underlying recreational use of IGS are not well understood.

A number of gaps exist in the recreational IGS literature (Rupprecht & Byrne, 2014b). We know little about how residents outside of Europe and the US perceive and use IGS, or what specific factors influence their interactions with IGS. We also lack knowledge about how IGS use, perception, and influencing factors may differ between different geographical and cultural contexts. Quantitative studies that examine multiple IGS types are scarce. Better understanding such aspects of IGS use, perception, and factors influencing IGS interactions may improve our ability to 'tap into' the potential of IGS to satisfy the recreational needs of rapidly increasing urban populations globally. Such an understanding could assist planners by exploring alternative, cost-effective land management approaches to traditional park space provision (Campo, 2013), both in growing cities (where high land prices prohibit large public space acquisitions) and in shrinking cities with growing areas of vacant land (Haase, 2008). Finally, a better knowledge of residents' relationship with IGS may also have implications for environmental conservation outside of cities. The opportunities for local nature contact that these spaces offer could foster residents' interest in

plants and animals and in turn engender support for protected areas (Dunn, Gavin, Sanchez, & Solomon, 2006).

This paper reports the results of a study that asked the following three research questions. (1) How do urban residents perceive, evaluate and use IGS? (2) What factors might influence their IGS interactions? (3) How do IGS interactions and their influencing factors differ between cities in different cultural settings? To address these questions, we combined a quantitative–qualitative mixed methods questionnaire and a GIS analysis conducted in two locations, Brisbane, Australia and Sapporo, Japan (see Section 2). We have found that over 80% of respondents knew of IGS in their neighborhood. Fifty-two (52) percent of respondents in Brisbane and 31% in Sapporo used IGS for recreation, with respondents choosing IGS over formal greenspace because it was closer, featured more diverse flora and fauna, and had no use restrictions. The influence of demographic factors on IGS use and evaluation is limited, but we identify cultural and geographic factors as potential drivers of difference in IGS evaluation and use between the two study locations.

To better understand the recreational potential of IGS as an alternative to formal greenspace, we need to look at the reasons why residents choose to use such greenspaces. The factors influencing such choices are best examined by visualizing their relationship in a conceptual model. We propose a model based on previous work by Byrne and Wolch (2009), which we have extended to account for different types of greenspace and factors previously overlooked (Fig. 1). Specifically, our model includes ecological aspects in the context of greenspace as well as in the characteristics of greenspace itself, and adds private as well as informal greenspace as types of space potential users may choose to visit. Researchers have shown that ecological aspects (e.g., the presence of vegetation and/or wildlife) can play an important role in influencing how users perceive and appreciate greenspace (Gobster & Westphal, 2004; Qiu, Lindberg, & Nielsen, 2013; Nassauer, 1993; Özgüner & Kendle, 2006).

As we discuss above, the influence of natural elements on user preferences is particularly complex for IGS (Rupprecht & Byrne, 2014b), which is why we include ecological characteristics of greenspace alongside social characteristics in the conceptual model. We have also added restrictions on utilization as an important element of social greenspace characteristics, because the lack of restrictions is potentially part of what makes IGS attractive (Campo, 2013). The central place of greenspace perception in our model recognizes how feelings of not-belonging can influence park use (Byrne, 2012)—an aspect that also applies to IGS due to its liminal nature (see above). We enriched the conceptual model with different types of greenspace to further draw attention to the heterogeneity of recreational greenspace options that are potentially available to urban residents. Finally, the comprehensive nature of our extended conceptual model allows us to consider the full complexity of factors involved in greenspace use decisions in our analysis.

2. Methods

2.1. Definition of informal greenspace (IGS)

For this study we have defined IGS as an explicitly socio-ecological rather than solely biological or cultural entity, following the definition we have employed elsewhere (Rupprecht & Byrne, 2014a,b). IGS consists of any urban space with a history of strong anthropogenic disturbance that is covered at least partly with non-remnant, spontaneous vegetation. It is not formally recognized by governing institutions or property owners as greenspace designated for agriculture, forestry, gardening, recreation (either as

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