



Review

Informal urban greenspace: A typology and trilingual systematic review of its role for urban residents and trends in the literature



Christoph D.D. Rupprecht^{a,b,*}, Jason A. Byrne^{a,b}

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

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

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ABSTRACT

Urban greenspace is vital in fulfilling people's nature needs. Informal urban greenspace (IGS) such as vacant lots, street or railway verges and riverbanks is an often-overlooked part of the natural urban landscape. We lack a formal definition of IGS and a comprehensive review of knowledge about IGS and its role for urban residents. This paper advances a formal definition and typology of IGS that can be applied globally. Based on this definition, a total of 65 peer-reviewed papers in English (57), Japanese (7) and German (1) were reviewed. We analyzed this literature for its temporal trends, spatial patterns, studied IGS types, methods used and key authors, and summarized the individual research papers' findings concerning IGS. Results show IGS plays an important role for urban residents, but also highlight limitations and problems in realizing IGS' full potential. Research papers focused on perception, preferences, value and uses of IGS. Residents could distinguish between formal and informal greenspace. They preferred a medium level of human influence in IGS. The analysis of patterns in the literature reveals: a marked increase in publications in the last 20 years; a strong geographical bias towards the USA; and a lack of multi-type IGS studies including all IGS types. Publications outside of scholarly research papers also make valuable contributions to our understanding of IGS. Our results suggest IGS is emerging as an important sub-discipline of urban greening research.

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Introduction

Cities are highly fragmented landscapes. They are comprised of a patchwork of paved and unpaved spaces, built and vacant land, and newly developed and obsolescent and/or abandoned buildings and infrastructure. Yet much of the research on urban forestry and urban greening focuses on clearly demarcated remnant or formal vegetation assemblages, such as habitat fragments, urban forests and parklands. But conventional park systems can be expensive to maintain, may be unviable in denser built environments, and may ultimately fail to satisfy residents' diverse needs (Byrne et al., 2010). Park management authorities widely employ use restrictions and thus limit the recreational potential of parks, for example as a playground for children (Gaster, 1991; Rupprecht, 2009). Comparatively less research has addressed the ambiguous, in-between or 'liminal' vegetated spaces found in cities across the world, spaces

that Jorgensen and Tylecote call 'ambivalent landscapes' (Jorgensen and Tylecote, 2007).

Even in the most densely developed metropolises, there are still a multitude of vacant lots, railway sidings, utility easements, corridors between buildings and canal sides that are often overgrown with spontaneous vegetation, which are not coherently managed, and which seem to occupy an uncertain, interstitial niche in the urban matrix (Ward Thompson, 2002). Even backyard gardens and suburban lawns can be liminal. They may be highly manicured, rambling or even overgrown and neglected, depending upon many factors such as feelings of ownership, socio-economic status, identity, cultural beliefs, level of neighbors' surveillance, age and government regulation, among others (Head and Muir, 2006; Trigger and Head, 2010).

Liminal green spaces elicit many questions. Why have they seemingly been neglected by researchers? Are such informal green spaces really temporary and transitory? Might they provide more permanent, but seldom-acknowledged functions for urban residents? If so, what benefits might they confer upon users and non-users, and what problems might they present? How can we formally define and describe them in a way that can be applied globally? What does the literature say about them and their role

* Corresponding author at: Room 3.16, Building G31, Griffith University, QLD 4222, Australia. Tel.: +81 52 621 4008.

E-mail addresses: christoph.rupprecht@griffithuni.edu.au (C.D.D. Rupprecht), jason.byrne@griffith.edu.au (J.A. Byrne).

for urban residents? What trends exist in the literature (temporal trends, spatial patterns, studied space types, methods used, key authors)? To answer these questions, this paper advances a concise, tri-lingual review of 65 peer-reviewed research papers, as well as a summary of pertinent books, on what we call 'informal urban green space', a particular type of liminal green space.

Liminality and informality: defining informal urban greenspace (IGS)

Recent research by urban researchers such as Seymour and colleagues (2010), Ghosh and Head (2009), and Guitart and colleagues (2012), has noted that urbanization is placing pressure on the ability of formal green space systems to meet residents' recreational, livelihood, sustenance and wellbeing needs. Scholars and practitioners have begun to turn their attention to forgotten or leftover urban spaces to better understand what functions they perform and how they might meet the needs of diverse urban populations (Pyle, 2002; Jonas, 2007; Schneekloth, 2007; Jorgensen and Keenan, 2012; Campo, 2013; Kremer et al., 2013). Some of this research has concentrated on formal greening programs, such as the renewal of Los Angeles' alleyways (Seymour et al., 2010) whereas other research has attended to 'leftover' spaces that may be used for food production (McLain et al., 2014). The urban agriculture literature, for instance, is replete with examples of informal or liminal spaces, some of which have attained a semi-permanent status while others have vanished as quickly as they appeared (Smit and Nasr, 1992). What is common to all of these spaces is uncertainty with regard to land tenure, conservation status, maintenance regimes, use, regulation and legitimacy (McLain et al., 2014). They are liminal spaces.

The concept of liminality is derived from several disciplines but is salient within the literature of urban geography (Howitt, 2001; Davison, 2008). It refers to a state of 'betweenness', intermediacy, or ambiguity of being – the 'indeterminacy of loose space', as Franck and Stevens call it (2007). Liminal spaces are 'at the margins', characterized by emergence and flux, fluidity and malleability, and are neither segregated nor uncontained (Moran, 2011). For this reason they are often contested.

To provide guidance and a sense of coherence in the fractured literature on this topic, we draw on a provisional, non-exclusive definition and typology of a form of liminal, quasi-public green spaces we call 'informal urban green space' (IGS). This definition and typology has already been tested in a field survey of IGS quantity and characteristics (Rupprecht and Byrne, 2014). We defined 'informal green space' (IGS) as an explicitly socio-ecological entity, rather than solely cultural or biological. IGS consists of any urban space with a history of strong anthropogenic disturbance that is covered at least partly with non-remnant, spontaneous vegetation (Del Tredici, 2010). It is neither formally recognized by governing institutions or property owners as greenspace designated for agriculture, forestry, gardening, recreation (either as parks or gardens) or for environmental protection (the typical purposes of most greenspace). Nor is the vegetation contained therein managed for any of these by the official owner. Any use for recreational purposes is informal and transitional (e.g. unsanctioned verge gardening), taking advantage of the liminal characteristics of IGS. Unlike formal greenspace, human origin and ecological conditions, not management, are the factors influencing IGS the most (Fig. 1).

IGSs differ in their management (e.g. access, vegetation removal, stewardship), land use and site history, their scale and shape, soil characteristics and local urban context. For example, a small brownfield and a vacant lot may be similar in appearance and size, but their different land use history, vegetation removal periods and urban context distinguish them. We identified nine different

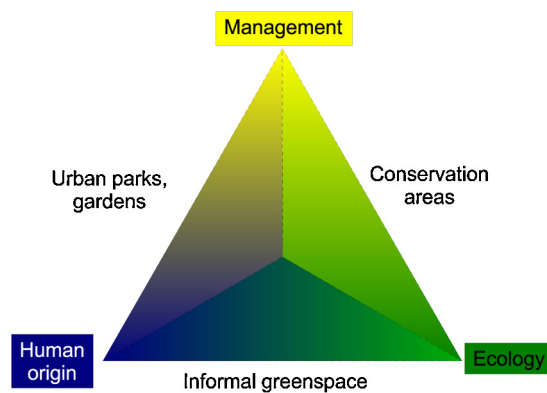


Fig. 1. Comparison of IGS and formal greenspace in terms of influence factor gradients.

subtypes of IGS: street verge, lot, gap, railway, brownfield, water-side, structural, microsite and power line IGS (Table 1 and Fig. 2). The subtypes are not exclusive; thus an IGS may be categorized as multiple subtypes (e.g. street verge and gap). Because this typology recognizes the variety of non-traditional greenspace, it provides a better basis to analyze the implications of IGS for planning and conservation than broad terms such as "wasteland" or "derelict land", and will be used in this systematic review. As mentioned above, the typology has already been applied to survey quantity and characteristics of IGS in a case comparison study (Rupprecht and Byrne, 2014). The distinction between IGS and formal greenspace is not binary, but rather characterized by a gradient of informality: formal recognition as recreational space by the owner provides a criterion to identify a local-government owned vacant lot covered with mowed lawn as IGS, but a low maintenance "wild" private garden as formal greenspace.

The use of the term 'informal greenspace' is not new, but it has thus far not been defined in a way that permits systematic and repeatable research by different scholars. Nicol and Blake (2000) include it in their review on open space but do not differentiate between IGS, as defined in this paper, and space used informally for recreation. Freeman and Buck (2003) and Freeman (2005) provide more detail by naming examples of IGS, but include arguably formal greenspace such as private gardens and provide no clear definition. Other authors use the word "informal" with varying meanings but do not describe the spaces in detail (Tartaglia-Kershaw, 1982; Burgess et al., 1988; Ward Thompson, 2002; Bell and Ward Thompson, 2003; Bjerke et al., 2006; Qviström, 2008; Nichol et al., 2010; Kattwinkel et al., 2011). The terms "urban wildscapes" (Jorgensen and Keenan, 2012) and "urban wilderness" (Konijnendijk, 2012) have also been used to describe liminal spaces similar to IGS. The provisional definition we have provided above aims to offer a basis for future studies of IGS.

This definition and description explicitly excludes remnant vegetation, parks, ornamental plantings (e.g. flower beds), gardens, secondary-growth urban forests and agricultural areas (fields, rice paddies, etc.). Such spaces differ from IGS in how they are recognized, managed and developed; they result from intention by the property owner, whether the vegetation is intentionally planted (e.g. in parks, gardens or second-growth forests) or intentionally preserved (e.g. remnant bushland). Secondary-growth urban forests (rather than, for example, small patches of woody vegetation on a brownfield) represent a borderline case and there is already substantial literature available on these forests, such as the seminal book edited by Kowarik and Körner (2005), parts of which apply to IGS (e.g., Rink and Emmrich, 2005). However, in most cases such forests are recognized for silvicultural or recreational value and thus excluded from the definition of IGS used in this review.

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