

1 Dwelling in the city: A qualitative exploration of the human-nature relationship in three types of  
2 urban greenspace

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## 12 **Abstract**

13 The combination of increasing numbers of people in cities, coupled with decreasing levels of  
14 biodiversity, is hypothesised to result in the extinction of experience, or the continued  
15 disintegration of the human relationship with the natural world. We use the concepts of sense of  
16 place and dwelling to investigate the human relationship with nature in cities by considering the  
17 emotional connections between people and places. We conducted ‘go-along’ interviews with 21  
18 residents of Hamilton, New Zealand, to explore the significance of neighbourhood parks and  
19 home gardens in the lives of urban residents. Our study highlights the importance of greenspaces  
20 in cities to the physical, mental and social health of local residents. Bush parks provided the best  
21 opportunities for respondents to observe nature and thereby escape the stress of city life.  
22 Participants wanted a variety of parks which would meet the range of their community’s needs  
23 and provide habitat for wildlife. Proximity and frequent use of parks resulted in a sense of  
24 ownership and responsibility which led to concrete action, such as participation in ecological  
25 restoration of valued greenspaces. Providing high quality natural greenspaces within walking  
26 distance of residents’ homes disrupts the extinction of experience by fostering positive personal  
27 experiences of nature, crucial for the health and wellbeing of people and for native biodiversity.

28 *Keywords (6): connection to nature; dwelling; extinction of experience; human-nature*  
29 *relationship; sense of place; urban greenspace*

30

## 31 **Research highlights:**

- 32 • Urbanites want greenspaces to meet the full range of community needs.
- 33 • Lawn parks serve primarily as backgrounds for social activities.
- 34 • Bush parks invite a deeper engagement with nature which provides restorative benefits.
- 35 • Proximity to greenspaces is vital for human-nature relationships of dwelling.

## 36 **Introduction**

37 Today, over half the world's population lives in urban areas, with numbers growing steadily  
38 (United Nations, 2018). While cities present both unique challenges and opportunities for  
39 biodiversity conservation (Kowarik, 2011; Shwartz et al., 2014a; Ives et al., 2016; Sanderson et  
40 al., 2018), urbanization drastically alters original habitats, often resulting in a loss of native  
41 species (McKinney, 2006; Aronson et al., 2017). Urbanization may therefore contribute to the  
42 “extinction of experience”, a term coined by Pyle (1978), which refers to a hypothesized loss of  
43 opportunities for city residents to interact with natural environments on a daily basis (Pyle, 1993;  
44 Soga & Gaston, 2016; Gaston & Soga, 2020). Daily experience of nature is seen as vital for  
45 developing personal, emotional bonds with the natural environment ( Miller, 2005; Restall &  
46 Conrad, 2015; Soga & Gaston, 2016). Concerns have been raised about a vicious cycle of ever  
47 decreasing levels of native biodiversity and the continued disintegration of the human  
48 relationship with the natural world (Turner et al., 2004; Soga & Gaston, 2018, Chawla, 2020).  
49 For most people, any daily contact with nature takes place in urban greenspaces (Fuller & Irvine,  
50 2010; Hunter & Luck, 2015), on which populations of native species in cities also primarily rely  
51 for habitat (Lepczyk et al., 2017). We define greenspace as per Hunter and Luck (2015) as  
52 unsealed land within an urban environment with some form of vegetation cover. Examples of  
53 greenspace include parks, gardens, cemeteries, golf courses and street trees.

54 The concept of the extinction of experience stresses the importance of emotional connections to  
55 places, and the nature and people that make up those places (Soga & Gaston, 2016). Emotional  
56 connections gained through personal experiences may be the key to improving our appreciation  
57 of native nature and our relationship with it, resulting in greater commitment to its protection and  
58 enhancement (Mayer & Frantz, 2004; Soga et al., 2016; Ives et al., 2018). While the links

59 between emotional connections to place and improved environmental outcomes are unclear  
60 (Robertson, 2018), Gould's (1991, p. 14) argument remains compelling since, "we cannot win  
61 this battle to save species and environments without forging an emotional bond between  
62 ourselves and nature as well – for we will not fight to save what we do not love." Given the  
63 potential of emotional attachment to place to influence our actions, we briefly review the  
64 concepts of sense of place and dwelling, drawing on the disciplines of environmental  
65 psychology, philosophy and humanistic geography. According to Seamon and Larsen (2021,  
66 p.1), humanistic geography is "an approach to geography that emphasizes the importance of  
67 human experience and meaning in understanding people's relationship with places and  
68 geographical environments." We then link these humanistic concepts to the goals of urban  
69 restoration ecology to explore how they might contribute to reversing the vicious cycle of  
70 biological poverty.

71 Places acquire meaning and become repositories of memories through people's lived experiences  
72 in them (Relph, 1976). As Tuan (1977) argued, what begins as undifferentiated "space" evolves  
73 into "place" as we come to know it better and endow it with value. Accordingly, a person's sense  
74 of place refers to that part of their personal and communal identity that develops through an  
75 association over time with the physical and symbolic features of a place and the social  
76 interactions which occur within it (Bernardini & Irvine, 2007; Dallimer et al., 2012). Dwelling, a  
77 concept developed by German philosopher Martin Heidegger, describes the process by which the  
78 place(s) in which we exist can become a personally significant world and home (Heidegger,  
79 1962; Seamon, 2000). Dwelling involves regularity, repetition and cyclicity (Seamon, 2000).  
80 Phenomenologist Bernd Jager describes dwelling as a "round world [...] the reoccurring times of  
81 seasons, of the cycles of birth and death, of planting and harvesting, of meeting and meeting

82 again, of doing and doing over again” (Jager, 1975, p.26). Dwelling describes a relationship with  
83 place whereby different “worlds are drawn together in a lasting way” (Seamon, 1993, p. 219).  
84 This relationship is built over time as we move through our homes, gardens, neighbourhoods and  
85 workplaces, performing everyday activities and interacting with the people, non-human others  
86 and objects around us. These habitual, taken-for-granted routines give meaning to specific places  
87 – meanings that are capable of constantly evolving and changing.

88 According to Heidegger, dwelling involves cherishing, protecting, preserving and caring for the  
89 things, people and events which together make up the places where we choose to live (Seamon,  
90 2000). This relationship with place is characterised by active involvement with the physical  
91 environment (Seamon, 2000) and is full of concern and a sense of responsibility (Relph, 1985).  
92 Reflecting on late 20<sup>th</sup> century urban contexts, Seamon (1985, p. 243) warned of a breaking  
93 down of this relationship with place, as people cease to be actively involved in the creation and  
94 care of the places where they live and work:

95         Our modern era cultivates journey, horizon and reach often at the expense of  
96         dwelling, centres and homes. One out of every three Americans changes place of  
97         residence every three years. Can we afford to continue this pattern? Do we want  
98         the interchangeable, artificial environments that Relph has called placelessness or  
99         should we consider the reestablishment of places, localities and communities  
100         grounded in landscapes and natural environments?

101 Seamon’s warnings are of increasing relevance in contemporary cities, which are undergoing  
102 rapid change and urban intensification, with many communities facing increasing pressures from  
103 population increases, rising housing costs, transience, and social fragmentation. Lewicka (2011)  
104 suggests that if we follow the humanistic geographers’ interpretation of place as dependent on its

105 historical continuity, unique character, boundedness, and opportunity for rest, then increased  
106 mobility, globalization, the growing homogeneity of places and loss of their cultural specificity  
107 should result in the destruction of places and undermining of people's relationships with them.  
108 One could argue that it is now more necessary than ever to ensure that city dwellers can  
109 experience a connection to place and to local, native nature.

110 Urban restoration ecology in New Zealand recognizes the importance of dwelling, as it seeks to  
111 create distinct places dominated by native species in the areas where the majority of the world's  
112 population lives, works and plays (Clarkson & Kirby, 2016). Creating or re-establishing these  
113 spaces in cities enables native nature to become part of people's daily routines and lives. In  
114 effect, ecological restoration has a dual purpose. It aims not simply to restore native habitats, but  
115 also to cultivate people's relationships with place and with native nature.

116 While connecting people with nature has the potential to inspire action for biodiversity  
117 conservation, a significant body of research also points to the multiple benefits of nature for  
118 human health and wellbeing (Hartig, Mitchell, De Vries, & Frumkin, 2014; Keniger, Gaston,  
119 Irvine, & Fuller, 2013; van den Bosch & Bird, 2018). There is further evidence that places  
120 encountered routinely in everyday life have greater potential to provide long-term benefits for  
121 wellbeing, compared to more dramatic, scenic but less accessible nature experiences (Bell,  
122 Phoenix, Lovell, & Wheeler, 2015a). Bell, Phoenix, Lovell, and Wheeler (2015b, p.89) argue  
123 that "green space studies need to start with an understanding of our everyday lives ("the power of  
124 personal routine") in order to explore the complex personal factors that shape individual capacity  
125 and inclination [...] to pro-actively engage with different green spaces." In this paper, we explore  
126 the human relationship with urban nature from the perspective of humanistic geography – one  
127 that does not focus simply on the material, observable phenomena in a particular environment,

128 but considers the subjective and emotional connections between people and places (Lewicka,  
129 2011; Seamon & Lundberg, 2016). Our research begins with people’s everyday lives and  
130 explores the meanings and relationships linking urban residents to local greenspaces.

131 The results presented here are part of a larger study exploring residents’ perceptions and  
132 experiences of nature in a New Zealand city (Elliot Noe et al., 2021). In this paper, we explore  
133 the lived experiences and complex human relationships with nature played out in urban  
134 greenspaces, drawing on the findings of a qualitative, exploratory, in-depth study conducted with  
135 residents of Hamilton City. We posed the following research questions:

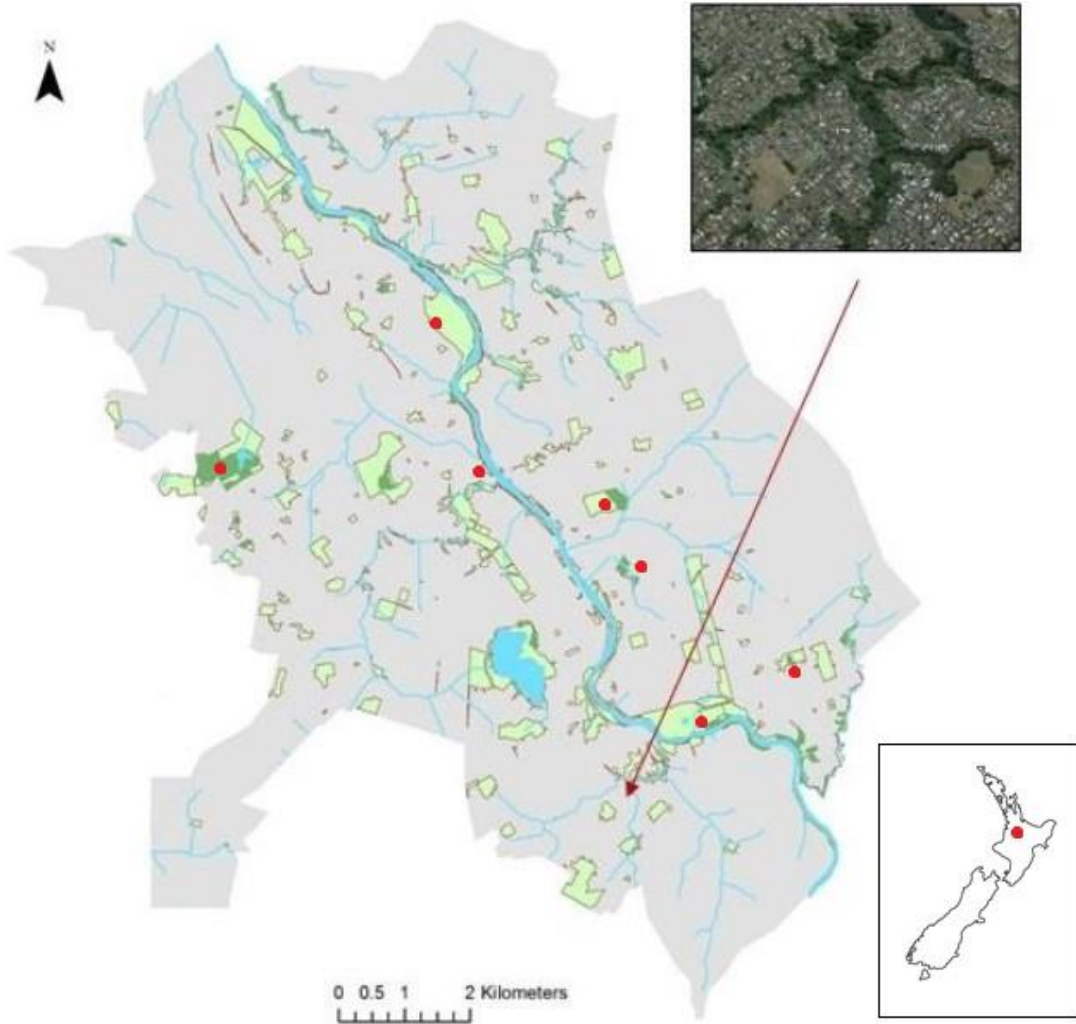
- 136 1. How do people perceive urban greenspaces and what benefits do they derive from them?
- 137 2. Do different kinds of greenspace support different nature experiences and types of  
138 connection? We focused on three types of greenspace: private gardens, parks dominated  
139 by native vegetation (“bush parks”) and parks dominated by introduced vegetation (“lawn  
140 parks”).
- 141 3. What is the status of connection to nature and is there evidence for the extinction of  
142 experience in Hamilton?

143 These questions are open and exploratory – the flexible nature of qualitative data collection  
144 meant we could not guarantee that we would be able to answer them (Smith et al. 2009). Because  
145 we were primarily interested in participants’ lived experiences of urban nature and the meanings  
146 they assigned to local greenspaces, we used an interpretative phenomenological approach (IPA)  
147 (Pietkiewicz & Smith, 2014; Smith, Flowers, & Larkin, 2009). This approach seeks to  
148 understand phenomena from the perspective of the participant, and focuses on an individual’s  
149 subjective experiences and how they make sense of them. For an in-depth discussion of IPA as  
150 used in this study, see Elliot Noe et al., 2021.

151 Finally, we consider the implications of our findings for the design and management of urban  
152 greenspaces that will align social and ecological goals, resulting in cities that support the health  
153 and wellbeing of both human residents and native nature.

154 **Methods**

155 The study was conducted from March to May, 2017, in Hamilton, a city in the North Island of  
156 New Zealand with an estimated population size of 165,400 (Statistics New Zealand, 2017, Fig 1).  
157 The city is bisected by the Waikato River and spans an extensive network of branching gullies  
158 (Cornes, Thomson, & Clarkson, 2012). The gully network represents the major remaining  
159 undeveloped greenspace in an otherwise highly built-up environment. Less than 2% of Hamilton  
160 is covered in native forest, the lowest percentage of any New Zealand city (Clarkson, Wehi, &  
161 Brabyn, 2007).



**Fig.1.** Map of Hamilton City showing the distribution of native forest (dark green), parks and golf courses (light green), and gully streams feeding into the Waikato River (blue). Top inset: Mangakotukutuku Gully (Google Earth), bottom inset: location of Hamilton in New Zealand. Red dots mark the location of sites visited in this study. Map adapted from Clarkson et al. 2018, with permission.

162 We conducted semi-structured “go-along” interviews (Carpiano, 2009) with 21 Hamilton residents  
163 to explore their daily experiences and relationships with nature. The go-along interview method is  
164 useful for exploring and improving understanding of people’s experiences within their local  
165 surroundings and neighbourhood (Carpiano, 2009). Through go-along interviews, the researcher  
166 is guided through the participants’ place experience. This allows the researcher to observe the  
167 participants’ physical world and their situated interactions and interpretations within the place of  
168 interest (Bell et al., 2015b). In contrast to surveys or conventional sit-down interviews, go-along  
169 interviews allow more of the context of participants’ lives to be taken into account, which is  
170 important for research on greenspaces.

171 In IPA, participants are selected because they have personally experienced the phenomenon under  
172 investigation. The participants represent a perspective, not a population. In this study, our focus  
173 was on residents’ experiences of urban nature, and we selected people who engage with nature  
174 through frequent visits to neighbourhood parks and by having a garden. IPA requires a  
175 commitment to detail and depth of analysis; the process is highly time-consuming and sample sizes  
176 are relatively small (three to six participants are recommended, Pietkiewicz & Smith, 2014).

177 Participants were recruited to represent three groups: ecological restoration volunteers (seven  
178 people recruited), frequent users of bush parks (seven) and frequent users of lawn parks (seven).  
179 The two park types were chosen because we wanted to explore if the vegetation in the park,  
180 specifically whether native or not, would influence residents’ relationships with that park. Bush  
181 parks included remnants (patches of native forest within the city that had never been logged) and  
182 restoration plantings (Fig. 2). Lawn parks were large expanses of mown lawns with non-native  
183 shade trees (Fig. 2). We also surmised that restoration volunteers are likely to have different  
184 relationships to parks they restore compared with people who use these parks but are not involved

185 in restoration activities (Kibler et al., 2018). In New Zealand, restoration typically involves  
186 planting native species, removing exotic plants and controlling introduced mammals (Clarkson &  
187 Kirby, 2016).

a)



b)



c)



d)



e)



f)



**Fig.2.** Examples of bush parks (a, b), lawn parks (c, d) and private gardens (e, f) in Hamilton, New Zealand.

188 Restoration volunteers were recruited through community groups involved in ecological  
189 restoration in Hamilton, and park users by distributing flyers to houses adjacent to either bush or  
190 lawn parks (categorized by the primary author) and by word-of-mouth. Sixteen participants were  
191 women and five were men, with ages ranging from 28 to 73. The majority identified as Pākehā  
192 (New Zealanders of European descent), with three Māori (the indigenous population of New  
193 Zealand), one Fijian and one Indian. Eighteen participants were homeowners; their properties  
194 consisted of a stand-alone house surrounded by relatively large gardens, the most common type of  
195 urban property in New Zealand (van Heezik et al. 2012). Three participants rented the same type  
196 of property.

197 Interviewees took the primary researcher on a tour of the park they visit regularly, followed by a  
198 tour of their garden. During the tours, participants were asked about the importance of these places  
199 and the ways in which they engage with them, and about the plants and animals they encounter in  
200 them (the full interview schedule is presented in Appendix 1). Interviews lasted between 30  
201 minutes and 2 hours, were audio-recorded with permission, and were later transcribed verbatim by  
202 the primary author. Participants were given pseudonyms to ensure anonymity. Written informed  
203 consent was sought from all participants and ethical approval was granted by the University of  
204 Waikato Faculty of Science and Engineering Human Research Ethics Subcommittee.

205 Following transcription, each individual interview was examined in detail; the primary author read  
206 the transcription and listened to the interview multiple times. This was followed by initial note  
207 taking – reviewing every word, phrase, sentence, and paragraph, highlighting anything of interest  
208 in the transcript, attempting to describe why it is important, and recording key words, phrases, and  
209 questions that arose during the reading and listening. Emergent themes were then developed by  
210 focusing on connections, relationships, and patterns in the initial notes. A summary of the

211 interview was written before moving to the next case and repeating the process. The authors  
212 identified shared themes across the accounts, exploring similarities and variations in greenspace  
213 experiences.

214 We identified seven major themes and multiple sub-themes (Table 1) which are discussed in detail  
215 in the Findings and Discussion. The first three themes, perceptions and benefits of gardens, bush  
216 parks and lawn parks, reflect how people talked about the three types of greenspaces, what they  
217 appreciated about them and why they sought them out. Three themes – social engagement and  
218 sense of community, sense of ownership, and tensions over park use – describe experiences,  
219 aspects of place and relationships that occurred in both types of parks, while wildlife encounters  
220 occurred across all three types of greenspaces. Connections to the three research questions are  
221 spread across all themes – we explicitly revisit the questions in the Conclusions.

222 Throughout the process of data collection and interpretation, we moved back and forth between  
223 the data and the literature, examining the interviews in relation to existing theoretical constructs  
224 and research findings (drawn from the literature on urban greenspace, restoration ecology,  
225 connection to nature and human-nature relationships) to provide our interpretation as an analytic  
226 form of generalisation, as opposed to one based on statistical frequency (Hodgetts et al., 2019).

**Table 1.** Overview of the main themes and sub-themes identified in the interviews.

Themes	Sub-themes
Perceptions and benefits of gardens	<p>Source of food/produce for people and wildlife</p> <p>Space where privacy is valued</p> <p>Gardening as enjoyable work, a loved, calming activity, an opportunity to “do your bit” for the environment</p> <p>A place to relax, observe nature, learn from observing nature, reconnect with surroundings, combat depression, provides relief from stress</p> <p>Pleasant view (“looking out on the garden rather than being in it”)</p>
Perceptions and benefits of bush parks	<p>Special, precious, privilege to have, paradise, ineffable, worth preserving and enhancing</p> <p>A place to observe nature, escape the city, recharge, experience with all senses, connect and learn from nature, place for rest and recovery, calming, peaceful, spiritual comfort, place to be alone, meditate</p> <p>A dynamic, changing system, observe changes over the year</p> <p>Home for wildlife</p> <p>“Messy”, undeveloped, “un-manicured” look is acceptable and desirable</p>
Perceptions and benefits of lawn parks	<p>Physical activity, child play areas, sport, walking</p> <p>Escape from work and home chores, de-stress</p>
Social engagement and sense of community (bush and lawn parks)	<p>Interaction with neighbours, sense of community</p> <p>Enjoying seeing others use park</p>
Sense of ownership (bush and lawn parks)	<p>Source of pride, duty of care which led to action (involvement in restoration, pulling weeds, picking up rubbish)</p>

Tensions over park use  
(bush and lawn parks)

Taking more than your share, conflicting views of  
what is a desirable plant, allowing children to play vs  
protecting plants, perceived safety

Wildlife encounters in the city  
(gardens and both park types)

Source of pleasure, encounters described as  
comforting, stunning, wonderful

Need to create spaces in cities for native birds

Desire to share city spaces with wildlife

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227 **Results and discussion**

228 *Perceptions and benefits of gardens*

229 For passionate gardeners in this study, the garden is a private space for relaxing and enjoyable  
230 work, as well as a place to wander and observe the (often literal) fruit of one's labours. The  
231 majority of interviewees (19) had vegetable gardens and fruit trees and found great satisfaction in  
232 eating their own produce or sharing it with both human and non-human neighbours (see Elliot  
233 Noe et al., 2021 for a more in-depth discussion of the value of gardens). Longhurst (2006)  
234 describes gardening as a labour of love – an activity where leisure and work merge. In a study in  
235 Leicester, UK, Bernardini and Irvine (2007) found that gardeners most highly valued the  
236 relaxation, peace and opportunity for meditation they obtained from gardening, followed by a  
237 sense of privacy and personal contact with nature.

238 Siobhan walks around her garden at least once a day, “just to have a wee look and admire things,  
239 see how things are ripening up.” Ngaio spends four to five hours a week gardening but does not  
240 see it as a chore, as she enjoys being outside and learning from observing the changes in her  
241 garden. “I’m a great believer, just from a gardener’s perspective, that if you can walk around in  
242 your garden every day, you just learn so much, just by observing.” For Cian, gardening is a way  
243 of relieving stress and reconnecting with her surroundings. “I think it keeps you grounded;  
244 avoids depression, all those things that people talk about. It’s like going for a walk, if you go for  
245 a walk, you can’t be sad.” Gross and Lane (2007) claim that gardening provides a positive  
246 distraction and escape from the stress and anxiety of daily life in the city. Less active gardeners  
247 in this study still derive enjoyment from observing their garden through the window or sitting  
248 outside while studying.

249 *Perceptions and benefits of bush parks*

250 Restored gullies, patches of remnant forest, and older native plantings along the river were  
251 described as special places that are a privilege to have, which provide a relaxing and restorative  
252 escape from city life. These greenspaces, dominated by native vegetation, are the ones  
253 respondents commonly identify as places to sit peacefully and observe nature. Kendall enjoys  
254 watching what goes on in the forested section of her park, which is a mix of exotic and native  
255 plants, from decomposing logs to morning dew on spider webs. She is attentive not only to the  
256 sights, but to smells and sounds as well, speaking of how lovely the park smells at night, and  
257 describing it as an aspect of the bush that most people miss out on, due to safety concerns. Her  
258 small patch of forest is appreciated as an escape from the city. “I love the fact that when you  
259 come down here, apart from the sound, you wouldn’t know you were in the city.” As was found  
260 in previous studies (Burgess, Harrison, & Limb, 1988; Fredrickson & Anderson, 1999; Loder,  
261 2014), these greenspaces are valued as something to immerse oneself in and experience with all  
262 the senses – touch, smell and sound, as well as sight. Bell and colleagues (Bell et al., 2015a)  
263 report that the restorative benefits of greenspace are gained through a whole-body, immersive,  
264 multisensory experience, which allows participants to let go of the worries of everyday life and  
265 creates mental space for relaxation and reflection. This embodied, multisensory experience is  
266 also an aspect of dwelling – “dwelling suggests a perspective which is about *being in the*  
267 *landscape*, about moving through it, in all the (perhaps) repeating yet various circumstances of  
268 everyday life [...] It is about fleeting intimate details that your senses can pick up from being *in a*  
269 *landscape*” (Cloke & Jones, 2001, p. 663).

270 Ngaio expresses similar feelings, describing the remnant forest near her house as a special place  
271 providing a beautiful vista of the river, where she enjoys watching the morning mist rise off the

272 water and the seasonal changes. One of the qualities of the bush that she identifies as providing  
273 respite from city life was the “unmanicured” nature of the forest. “I like the idea that we can  
274 actually be living in the city and go and visit a piece of bush, actual bush, rather than something  
275 manicured.” Unlike Loder’s (2014) study of perceptions of green roofs in Chicago and Toronto,  
276 our respondents did not speak of bush fragments as messy, unkempt or “wild looking.” Loder  
277 (2014) proposed that urban residents disliked the messy aesthetics of prairie-style green roofs in  
278 part because of their expectations of what kind of “nature” was acceptable in cities. Similar  
279 findings were reported by Fischer and colleagues (2020) in their study of public attitudes toward  
280 urban grassland in 19 European cities, where most respondents wanted grasslands to appear neat  
281 and tidy. Our respondents, however, appreciate the unmanicured, “wild” nature of bush  
282 fragments in their city, although this view did not hold for their own gardens (Elliot Noe et al.,  
283 2021). Location was important – bush parks were places where nature was allowed to be  
284 “messy,” but gardens must conform to a “tidy” social ideal. This acceptance of wilder, messier  
285 greenspaces may reflect a recent shift in public preferences, as has been reported in Europe  
286 (Hoyle et al., 2017; Fischer et al., 2018).

287 Balfour views his park’s remnant forest as special because of the age of its trees and the scarcity  
288 of these patches in Hamilton, making them worth preserving and enhancing. He too was in the  
289 habit of observing nature. “I am interested in the bush and I look at it and look hard to see what I  
290 can see, any changes or any new birds or insects.” Breena spoke of walking through her restored  
291 gully park to feel good and recharge. “I just love this, this is a special bit because it’s got the  
292 canopy and it’s always so peaceful in here, this is one of my favourite parts,” she commented,  
293 walking through a stand of 60-year-old kahikatea (an endemic New Zealand tree). Kaelin

294 brought up these same themes of the restorative benefits of observing nature in the replanted  
295 gully behind her house,

296       You can be down here in the right time of the year and you think, where am I? It's  
297       not the city, it's just ringing with birdsong [...] I can come down here, wander  
298       along with my cup of tea in the morning when it's just me and the stuff going on  
299       here [...] Often I'd just come down, bring a cup of tea and just sit, just see what's  
300       happening down here [...] there's no houses and it's just marvellous.

301 Our findings, along with those of previous studies (Russell et al., 2013), support Kaplan's (1995)  
302 Attention Restoration Theory, which proposes that the natural environment facilitates rest and  
303 recovery from mental fatigue. Spending time in natural environments has been shown to improve  
304 urban residents' concentration and reduce fatigue and irritability (Russell et al., 2013). It is  
305 further worth emphasizing that in our study, these themes of relaxation, close observation of the  
306 natural world, and escape from city life were brought up principally in reference to bush parks  
307 dominated by native vegetation. Shwartz et al. (2014b) conclude that urbanites may claim to  
308 appreciate and benefit from greater levels of biodiversity, while simultaneously showing a poor  
309 ability to recognize and experience this diversity. Our research, however, suggests that urban  
310 residents are responding to the greater complexity and diversity of restored and remnant  
311 vegetation by using these areas for observing the natural world, which gives them a sense of  
312 calm and escape from daily routines. Our findings may support Fuller and Irvine's (2007) theory  
313 that gross structural habitat heterogeneity cues the perceptions of biodiversity benefits. Similarly,  
314 Southon and colleagues (2017) found that structurally diverse meadows were preferred to short  
315 meadows. Urban residents may not speak in ecological terms of species richness and

316 biodiversity, but they do respond to the greater complexity of native bush parks which  
317 encourages close observation of nature and restoration.

318 In their study of a citizen science butterfly monitoring project, Cosquer, Raymond, and Prevot-  
319 Julliard (2012) suggest that city dwellers have lost the habit and practice of observing nature. For  
320 our study participants, this is not necessarily the case, and the presence of gullies and bush near  
321 their homes encouraged them to wander through their park and enjoy their daily encounter with  
322 the natural world, allowing for the development of a dwelling relationship with place.

### 323 *Perceptions and benefits of lawn parks*

324 While bush parks are appreciated as peaceful, restorative refuges where nature can be observed  
325 and enjoyed, lawn parks are more frequently seen as spaces that allow for physical activity by  
326 providing areas for children's play and organized sports. Whereas only one participant uses her  
327 park for a sport, others commented on the importance of these spaces for people who might want  
328 to engage in physical activity.

329 Artair described lawn parks as “highly organized human creations” providing large open spaces  
330 suitable for community gatherings or sports – “and that’s obviously important to a lot of people,  
331 a lot of younger people particularly. It’s not something that I’d want or use but important to other  
332 people.” Arriving at the edge of her local bush park, Siobhan commented – “For me this is where  
333 the park starts. Yeah, that’s pretty [*the mown lawns and specimen trees before the bush remnant*]  
334 but it’s just field area.” Aindrea was disappointed when the local council mowed a section of his  
335 park that he had been planting with native trees – “seems to be the way with a lot of their parks,  
336 it’s just grass. Not great for people to use, other than for sports,” while Āwhina commented drily  
337 about her lawn park that at least it was better than no grass. Thus, lawn parks were more likely to  
338 be spaces moved through as backgrounds for other activities, such as sports or community

339 events, whereas bush parks invited deeper connections, such as observation and full sensory  
340 immersion.

341 *Social engagement and sense of community: bush and lawn parks*

342 Both types of parks are used extensively for walking, and dog-walking in particular, an activity  
343 that appeared to facilitate social interactions that provide respondents with a strengthened sense  
344 of belonging in their neighbourhood. Dog-walking was the main reason many interviewees used  
345 their parks regularly, which was seen as a positive aspect of dog ownership. Inoke spoke of how  
346 walking his dog forces him to get out, which he describes as a nice de-stressing activity. Dog-  
347 walking further provides an opportunity to meet other dog owners and often results in groups of  
348 neighbours meeting up regularly to walk their dogs. According to Power (2013), dogs shape  
349 neighbourhood relationships by encouraging people to get outside on a regular basis, and by  
350 providing a neutral topic of conversation and point of connection with other dog owners.

351 The benefits of regular walking in nearby parks identified by interviewees included exercise,  
352 social engagement, an opportunity to reconnect with family, and the de-stressing, relaxing effect  
353 of walking in green areas. Caitrin appreciates the benefits of solitary walks. “I like it, it’s  
354 meditative, sometimes I take myself for a walk, it clears my head, so I find that very, very  
355 useful.” Walking further allows respondents to get away from the routines and chores of home  
356 and work. Inoke comments: “My wife and I, this has been our ritual thing that we’ve always  
357 done, walked around the park, you know? [...] It’s just a good time for my wife and I to be able  
358 to talk, walk and talk and catch up, and I suppose it gets us away from our work at home.”  
359 Inoke’s use of the term “ritual” suggests a relationship of dwelling, where repetition and  
360 cyclicity give time-deepened meaning to their walk around the park. Previous studies have  
361 similarly emphasized the social benefits of access to greenspaces, with parks seen as providing a

362 place for the community to come together and create a sense of neighbourliness and cohesion  
363 through the “repeated-ness of meeting the same faces” (Bernardini & Irvine, 2007, p. 671;  
364 Home, Bauer, & Hunziker, 2010). This regularity and repetition of meeting and meeting again is  
365 an aspect of dwelling. These casual relationships with frequently encountered neighbours foster  
366 feelings of connectedness to the wider community and place (Dinnie et al., 2013).

367 Many respondents enjoyed seeing other people use their parks. Families having picnics, the  
368 Asian community gathering ginkgo fruit, children jousting with bamboo sticks or diving into the  
369 river, Muslims from the mosque playing soccer after service – all these and many more were  
370 listed as positive experiences enhancing residents’ appreciation of their parks. Laren  
371 summarizes: “what we love about this park is that it’s so well used, so kids over there, cyclists  
372 coming through [...] sporting events in here and all sorts of people come and go, which is great, I  
373 just love that. It makes living in the city so wonderful, to have such beautiful greenspace.” Cian  
374 takes particular pride in her engagement with her neighbourhood community, commenting that  
375 she knows all the people in the area and has met most of them in the park.

#### 376 *Sense of ownership: bush and lawn parks*

377 Interviewees often expressed great pride in their neighbourhood parks and felt a sense of  
378 ownership and responsibility for their upkeep. This duty of care, a component of dwelling,  
379 manifests itself in small acts, such as collecting rubbish and pulling weeds, or in greater time  
380 commitments, such as restoration, providing an example where values lead to action (in contrast  
381 to the value-action gap, see Elliot Noe et al., 2021). Four of the restoration volunteers  
382 interviewed are involved in restoration in their neighbourhood park, highlighting the importance  
383 of dwelling, or proximity, routine and daily encounters for creating an emotional bond with place  
384 that results in concrete action. The garden versus park dichotomy became blurred for people

385 living adjacent to parks, as they view nearby greenspaces as an extension of their backyard.  
386 When asked if he was interested in conservation, Inoke replied that although he would not join  
387 protest marches,

388       If somebody came over here and started messing with our park, then you would  
389       probably see something different, you'll notice I just used the words 'our park,' so  
390       in a way my wife and I have taken ownership of the park because we see it almost  
391       like our backyard. And I don't seem to think that's necessarily a bad thing if  
392       people who live around it take some form of ownership because then they care  
393       about it.

394 Breena, whose house backs onto the restored gully where she both walks frequently and is  
395 involved with the local restoration group, voiced a similar opinion,

396       I do have to stop myself thinking that I own it. If you know what I mean, not that,  
397       it's just I get concerned about it, you know, sort of take ownership, I suppose,  
398       when you live near or you work in it.

399 Proximity to the park is vital in developing this sense of ownership, as is frequent use in the form  
400 of regular walks or involvement in restoration activities, stressing the need to provide  
401 greenspaces within walking distance of residents' homes, schools and workplaces. In a study of  
402 natural area users in Michigan, Ryan (2000, p. 218) found a strong relationship between use of  
403 the site and attachment to it, and he concluded that "building these connections between people  
404 and the natural environment is essential for creating advocates for natural area restoration and  
405 preservation." This relationship between attachment to a place and intensity of use has been  
406 reported in other studies (e.g., Dinnie et al., 2013), with the caveat that familiarity with a place

407 will not necessarily result in attachment to it if the space does not meet one's needs (Bernardini  
408 & Irvine, 2007; Ryan, 2005).

409 *Tensions over park use: bush and lawn parks*

410 While participants appreciate their parks as a space to engage with their community, tensions  
411 arise when residents have conflicting views about the meaning and resulting use of a place. One  
412 participant was affronted when a group came through and cleared patches of mushrooms – she  
413 saw this as an end to the New Zealand tradition of only taking enough for one's family and  
414 leaving some for the rest of the neighbourhood. Another respondent described the clearing of a  
415 section of bush park that had once been “infested” with hydrangeas as a positive act of  
416 restoration, while that same event was seen as distressing by another participant who described  
417 the hydrangeas as magnificent, attractive to butterflies, and a memorial to the friend who planted  
418 them and had since passed away. As previous studies confirm, greenspaces have multiple  
419 meanings attached to them by individuals and groups, determining how they should be used and  
420 managed (Dinnie et al., 2013; Hoyle, 2020). These meanings can be complementary, or they can  
421 be incompatible and therefore contested. Dwelling emphasizes place as a source of rootedness,  
422 belonging and comfort but it can also involve conflict since drawing different worlds together  
423 has the potential to result in tensions when the priorities, meanings and uses of these different  
424 worlds are incompatible.

425 Some participants commented on the tension between allowing children to explore and play in  
426 bush parks and the need to protect native plants. Children's access to natural areas counters the  
427 extinction of experience (Chawla, 2020; Louv, 2008), and Taylor, Wiley, Kuo, and Sullivan  
428 (1998) found that children are more likely to engage in creative play in outdoor spaces with a  
429 greater amount of vegetation. Such tensions highlight the difficulties urban planners and

430 managers may experience in facilitating public use of urban greenspaces, while simultaneously  
431 protecting native species (Ryan, 2005).

432 Issues of perceived safety were brought up by 10 participants as a deterrent to park use. Women  
433 spoke of feeling uneasy or unsafe walking through certain bush parks, and husbands worried for  
434 their wives. When deciding on a home to rent, Āwhina looked into surrounding parks not in  
435 terms of their attractiveness, but of the number of “dodgy” people hanging around them. A large  
436 forest remnant was seen by many as unsafe, and women would not go through the bush when  
437 alone or after dark. When asked whether she walks through the forested area of her park, Caitrin  
438 replied:

439           Ha, that’s an interesting question. Not usually if I’m on my own [...] There have  
440           been times where people have gone through and they’ve been accosted or that sort  
441           of thing. Which is really difficult because it’s lovely when you do go through.

442 Thus, the vegetation complexity of bush remnants which benefit native animals (e.g., Elliot Noe  
443 et al., 2022) and encourage a deeper connection to the natural world can act as a deterrent to park  
444 use if seen to provide cover for potential crime. Guidelines for Crime Prevention through  
445 Environmental Design (<https://www.cpted.net/>) may discourage the very complexity on which  
446 native species and our own deeper relationships with nature depend. Ryan (2000) found that fear  
447 of wilder areas was associated with a lack of ecological expertise and tended to be more  
448 prevalent among women, while respondents to a survey in Sheffield identified vandalism and  
449 neglect alongside dense vegetation as reasons for park safety concerns (Fuller & Irvine, 2010).  
450 These perceived safety threats may compromise the unique benefits provided by wilder parks  
451 (Jorgensen et al., 2007).

452 In our study, the potentially threatening people were identified as layabouts, the ‘homeless  
453 element’ and groups of teenagers, though Caitrin concluded, “What does a person who might do  
454 you harm look like? It’s anybody’s guess, really.” Many spoke of vandalism, such as setting  
455 fires, burning tree ferns, spray painting trees, stealing or destroying wētā (an endemic New  
456 Zealand insect) boxes and pulling up and breaking young plants. Vandalism and the presence of  
457 people seen as threatening can lead to residents avoiding bush parks, decreasing opportunities for  
458 dwelling. A few respondents believed that putting in more lights would make the bush parks  
459 safer, pointing to a source of possible tension between human and wildlife needs, as light  
460 pollution in bush parks could negatively affect native nocturnal species. Breena was convinced  
461 that the more people used the park, the safer it would be. “It may be a silly attitude I’ve got but I  
462 reckon everybody’s got to take a stand and the more people that come, the safer it is. And so I  
463 always try and encourage people to come.”

#### 464 *Wildlife encounters: parks and gardens*

465 When asked to reflect on the animals they see in urban greenspaces, respondents most frequently  
466 mentioned birds, supporting Cox and Gaston’s (2015) contention that birds are the most noticed  
467 wild animal in cities. Bird encounters were a great source of pleasure for most participants,  
468 whether or not the bird was native to New Zealand. Many interviewees commented on the return  
469 and increasing numbers of tūī (an endemic New Zealand bird) in Hamilton, with animated stories  
470 of their first sighting in the city, an occasion often warranting a blurry photograph. Participants  
471 wanted to attract tūī into their gardens and fantasized about being woken by their song. Tūī and  
472 morepork (a native owl) calls were frequently mentioned, and were described as recognizable,  
473 familiar, wonderful and lovely. Cian was particularly observant when it came to bird use of her  
474 neighbourhood; during the tour of the park, she pointed out hollow trees where she found

475 kingfisher nests, described her experience seeing grey warblers feeding a shining cuckoo chick  
476 as “one of those great thrills,” and recounted seeing moreporks sitting on a branch with their  
477 chicks as a stunning, wonderful encounter. For Cian, non-human others were important co-  
478 creators of place, and her bush park provided a space where her world and that of native birds  
479 were regularly drawn together.

480 While in general participants seemed to appreciate introduced finches and song thrushes as much  
481 as they did native bush birds, a few respondents referred to the importance of creating spaces in  
482 cities where native birds could flourish. In their survey of Hamilton gully owners, Jay and Stolte  
483 (2011) found that 34% of respondents thought it was important to “bring back” native birds.  
484 There is a tension, however, between wanting to ‘give native birds a chance’ and still enjoying  
485 pretty non-native species. Artair, while weighing up the benefits of bush parks and lawn parks,  
486 deliberates:

487         We definitely want to encourage these [*native birds*], we’ve hammered these  
488         species really hard the last 100 years and really what we’re trying to do is give  
489         them a chance [...] I wouldn’t go as far as to say that I want all parks to look like  
490         this [*bush remnant*], because I like these parks too [*lawn park*], so basically you  
491         want to have it all, don’t you? I mean, because all these other birds [*non-natives*],  
492         they’re actually quite beautiful too.

493 Reflecting on the value of bush parks, Balfour concludes, “we’ve got to provide lots of homes  
494 for natives and these birds [*non-natives*] can live anywhere.” Both respondents agree that they  
495 would only feel negatively towards non-native birds if they were shown to displace or compete  
496 with natives. Siobhan declares that it is very important to her to see native birds and encouraging  
497 them is one reason she wants native bush in the city – “for all the special birds.” Kaelin and

498 Kendall both stressed the importance of having food sources for wildlife in greenspaces, as  
499 otherwise these areas appear attractive to people but are incapable of supporting wildlife. The  
500 idea of sharing city spaces with wildlife was described as “comforting” by Kaelin, as she talked  
501 of the bats that move through her gully. Inoke, when speaking of the birds he saw in the park  
502 comments,

503           Because you see, for us too, the birds and that sort of stuff, not that I could ever  
504           suggest to you that I’m into ornithology or know what birds are what, but you  
505           know that type of thing, the wildlife, is part of this place, and it makes it what it is  
506           for us, you know?

507 While Inoke admits his knowledge of birds is limited, he notices wildlife and believes it belongs  
508 in the city. He asserts that the wildlife of his neighbourhood park and garden is integral to the  
509 meanings he holds for these places, revealing a sense of connection and appreciation for non-  
510 human others, all of which are aspects of dwelling.

511 Most residents interviewed spoke with great affection, emotion and enthusiasm about bird  
512 encounters in their city. Half were keenly aware of birds and their use of urban greenspaces. A  
513 few participants further spoke of their desire for green areas in their city to provide habitat for  
514 native wildlife in general, and birds in particular. Sharing spaces with wildlife was described as  
515 comforting and contributed to residents’ attachment to place. Thus, the communal view of  
516 greenspaces is not limited to supporting multiple human uses, but extends to include the needs of  
517 non-human others.

## 518 **Summary and Conclusions**

519 *How do people perceive urban greenspaces and what benefits do they derive from them?*

520 Our research highlights the vital importance of greenspaces in cities. Participants were  
521 unanimous in their enjoyment of bush remnants, lawn parks and gardens. In particular  
522 interviewees voiced a desire to have spaces in cities where unique New Zealand plants and  
523 animals can thrive. Respondents enjoyed sharing their parks and gardens with birds, bats and  
524 insects, recognizing that these animals contributed to the meaning of the place. Creating habitat  
525 in cities for wildlife, however, is only one of the multiple purposes of greenspaces that  
526 respondents believe are important. They want to see a variety of parks, which will meet a range  
527 of community needs. Just as respondents held multiple priorities for their gardens, which did not  
528 always align with promotion of native nature (Elliot Noe et al., 2021), interviewees also want  
529 urban greenspaces to support multiple uses, and not serve exclusively as wildlife habitat.  
530 Management should therefore focus on creating a mosaic of greenspaces, promoting diversity  
531 and catering for multiple values, interests and needs. Maintaining a diversity of habitat types has  
532 also been found to maximise cumulative biodiversity benefits in the case of urban meadows  
533 (Norton et al., 2019).

534 *Do different kinds of greenspace support different nature experiences and types of connection?*

535 Different types of urban greenspaces held different meanings and benefits for interviewees. Bush  
536 parks tend to be the places where respondents found the greatest opportunity for “escaping” the  
537 stress of a highly urbanised existence through the peaceful observation and appreciation of the  
538 rhythms and cycles of nature. There appears to be something unique about the diversity and  
539 unmanicured “wildness” of bush parks that encourages observation, reflection and restoration.  
540 Lawn parks were appreciated for sport and community events but did not invite the same focused

541 engagement with the natural world. Gardens did allow for that deeper observation and  
542 engagement, with the added characteristic of being private, and therefore not providing the social  
543 benefits that parks do. Both bush and lawn parks contribute to our respondents' sense of  
544 community, neighbourliness, and social cohesion within their neighbourhood. All three types of  
545 greenspaces provided encounters with wildlife.

546 The dichotomy between park and garden is blurred for participants who live near a park that they  
547 use frequently. Thus, proximity to a park encouraged frequent use, which in turn allowed  
548 residents to build a dwelling relationship with their local greenspace over time, resulting in acts  
549 of care. Due to a collective sense of ownership, respondents appreciate the variety of people and  
550 non-human others able to use their park, though tensions arose over what was seen as appropriate  
551 use. This personal feeling of concern and care for one's neighbourhood park could be a powerful  
552 force for engaging city residents in the ecological restoration of local greenspaces. However, this  
553 sense of ownership also highlights the potential for conflict when residents' priorities for their  
554 park do not align with those of local authorities. Other tensions over park use, for example,  
555 between allowing children to play while simultaneously protecting native plants, or the safety  
556 concerns in densely vegetated parks, point to the unique challenges faced by city planners and  
557 park managers in designing greenspaces that will benefit both city residents and native wildlife.

558 *What is the status of connection to nature and is there evidence for the extinction of experience*  
559 *in Hamilton?*

560 In contrast to Cosquer and colleagues' (2012) suggestion that city residents are losing the ability  
561 to observe nature, most of our respondents were attentive to the plants and animals in their parks  
562 and gardens. Urban nature offered a source of wonder and enjoyment, or a taken-for-granted but  
563 integral part of daily life. Our study highlights the importance of maintaining and growing

564 greenspaces within cities, as our participants regularly seek them out and benefit from daily  
565 contact with nature. Lawn parks are the most common type of greenspace in cities (Norton et al.,  
566 2019). Yet, our study highlights that ecological restoration is needed to increase the quality and  
567 quantity of native forest parks, as these much rarer greenspaces (Clarkson et al., 2007) provide  
568 unique benefits to both people and native species.

569 With most participants, we were able to walk from their house to their neighbourhood park as  
570 part of the go-along interview process. Our research suggests that cities can support intimate  
571 relationships of dwelling with nature, but proximity is vital in facilitating the daily experiences  
572 and interactions needed for a place to become personally significant, as suggested by the concept  
573 of 'dwelling'. Despite concerns about urban residents' nature disconnection, our study suggests  
574 that not all city dwellers have become oblivious to the pleasures of the natural world. Connection  
575 to nature in our study took the form of emotional responses of joy, wonder and excitement, close  
576 observation, positive experiences in nature such as relaxation, peace, and calm, and a sense of  
577 ownership and responsibility for one's neighbourhood park. Even so, it needs to be  
578 acknowledged that our participants may represent a lucky few who live within walking distance  
579 of high value greenspace.

580 While this study has provided detailed, in-depth and contextualized insights into urban residents'  
581 routine contact with nearby nature, these insights are based on a small, self-selected sample.  
582 Given that a criterion of participation was visiting a park regularly and owning a garden, this  
583 study would naturally have selected people who had easy access to greenspace and already had  
584 strong ties to the natural world. Cox and colleagues (2017) found that people who experience  
585 nature regularly in cities are the exception, not the norm, so future research could focus on those  
586 who do not utilise local greenspaces.

587 Since our health and wellbeing are inextricably intertwined with the health of the natural world,  
588 urban planning and design holds the potential to reconcile the needs of both people and native  
589 species (McDonald, Kareiva, & Forman, 2008; Miller, 2006; Tanner et al., 2014). This requires a  
590 revolutionary approach to urban design to re-establish places and communities grounded in local,  
591 indigenous landscapes (Seamon, 1985; McDonald & Beatley, 2021). The multiple, unique  
592 benefits for wellbeing provided by “wilder” bush parks in our study affirm the importance of  
593 native greenspaces within walking distance of residents’ homes, schools and workplaces. The  
594 multiple benefits provided by greenspace to both people and native species is threatened,  
595 however, by the loss of greenspace to redevelopment and densification (Haaland & van den  
596 Bosch, 2015).

597 As city populations continue to rise, our research offers a renewed call for the importance of  
598 reserving a space for nature in cities. Instead of being a dispensable luxury, greenspace is crucial  
599 for the health and wellbeing of both people and native species. Finding ways to foster positive  
600 personal experiences of place, and the plants, animals, people, and stories that give it meaning, is  
601 one way to increase city dwellers’ emotional involvement with local nature. Such subjective  
602 bonds can spur the motivation required for people’s everyday actions to nurture and protect what  
603 they love. We need to consider how we can harness the power of subjective experiences and  
604 emotions relating to place to interrupt the vicious cycle of biological poverty and the extinction  
605 of experience. Drawing on the concepts of sense of place and dwelling, we contend that  
606 ecological restoration in urban areas has great potential for restoring and enriching our own  
607 human lives and that of native nature in cities today.

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617

## References

- Aronson, M. F., Lepczyk, C. A., Evans, K. L., Goddard, M. A., Lerman, S. B., MacIvor, J. S., ... & Vargo, T. (2017). Biodiversity in the city: Key challenges for urban green space management. *Frontiers in Ecology and the Environment*, *15*(4), 189-196.
- Bell, S. L., Phoenix, C., Lovell, R., & Wheeler, B. W. (2015a). Seeking everyday wellbeing: The coast as a therapeutic landscape. *Social Science & Medicine*, *142*, 56-67.
- Bell, S. L., Phoenix, C., Lovell, R., & Wheeler, B. W. (2015b). Using GPS and geo-narratives: a methodological approach for understanding and situating everyday green space encounters. *Area*, *47*(1), 88-96.
- Bernardini, C., & Irvine, K. (2007). The 'nature' of urban sustainability: Private or public greenspaces? *WIT Transactions on Ecology and the Environment*, *102*, 661-674.
- Burgess, J., Harrison, C. M., & Limb, M. (1988). People, parks and the urban green: A study of popular meanings and values for open spaces in the city. *Urban Studies*, *25*(6), 455-473.
- Carpiano, R. M. (2009). Come take a walk with me: The "Go-Along" interview as a novel method for studying the implications of place for health and well-being. *Health & Place*, *15*(1), 263-272.
- Chawla, L. (2020). Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. *People and Nature*, *2*(3), 619-642.
- Clarkson, B. D., Wehi, P. M., & Brabyn, L. K. (2007). *Bringing back nature into cities: Urban land environments, indigenous cover and urban restoration*. Retrieved from Hamilton, New Zealand:  
[https://www.waikato.ac.nz/\\_data/assets/pdf\\_file/0010/471997/CBER\\_52.pdf](https://www.waikato.ac.nz/_data/assets/pdf_file/0010/471997/CBER_52.pdf)

- Clarkson, B. D., & Kirby, C. L. (2016). Ecological restoration in urban environments in New Zealand. *Ecological Management & Restoration*, 17(3), 180-190.
- Clarkson, B. D., Kirby, C. L., & Wallace, K. J. (2018). Restoration targets for biodiversity depleted environments in New Zealand. Environmental Research Institute, The University of Waikato, Hamilton, New Zealand. [online]  
URL: <https://www.biodiversitynz.org/uploads/1/0/7/9/107923093/clarkson-bruce-restoration-targets-for-biodiversity-depleted-environments-2018.pdf>
- Cloke, P., & Jones, O. (2001). Dwelling, place, and landscape: An orchard in Somerset. *Environment and Planning A*, 33(4), 649-666.
- Cornes, T. S., Thomson, R. E., & Clarkson, B. D. (2012). *Key ecological sites of Hamilton City*. Retrieved from Centre for Biodiversity and Ecology Research, University of Waikato, Hamilton, New Zealand:  
[https://researchcommons.waikato.ac.nz/bitstream/handle/10289/6565/CBER\\_121.pdf?sequence=1](https://researchcommons.waikato.ac.nz/bitstream/handle/10289/6565/CBER_121.pdf?sequence=1)
- Cosquer, A., Raymond, R., & Prevot-Julliard, A.-C. (2012). Observations of everyday biodiversity: A new perspective for conservation? *Ecology and Society*, 17(4), 2.
- Cox, D. T., & Gaston, K. J. (2015). Likeability of garden birds: Importance of species knowledge and richness in connecting people to nature. PLoS ONE 10(11):e0141505. <https://doi.org/10.1371/journal.pone.0141505>
- Cox, D. T., Hudson, H. L., Shanahan, D. F., Fuller, R. A., & Gaston, K. J. (2017). The rarity of direct experiences of nature in an urban population. *Landscape and Urban Planning*, 160, 79-84.
- Dallimer, M., Irvine, K. N., Skinner, A. M., Davies, Z. G., Rouquette, J. R., Maltby, L. L., . . . Gaston, K. J. (2012). Biodiversity and the feel-good factor: Understanding associations between self-reported human well-being and species richness. *BioScience*, 62(1), 47-55.
- Dinnie, E., Brown, K. M., & Morris, S. (2013). Community, cooperation and conflict: Negotiating the social well-being benefits of urban greenspace experiences. *Landscape and Urban Planning*, 118, 103-111.
- Elliot Noe, E., Clarkson, B., & Stolte, O. (2021). The “desire to have it all”: Multiple priorities for urban gardens reduces space for native nature. *Ecology and Society*, 26(2).
- Elliot Noe, E., Innes, J., Barnes, A. D., Joshi, C., & Clarkson, B. D. (2022). Habitat provision is a major driver of native bird communities in restored urban forests. *Journal of Animal Ecology*, 91(7), 1444-1457.
- Fischer, L. K., Honold, J., Cvejić, R., Delshammar, T., Hilbert, S., Laforteza, R., ... & Kowarik, I. (2018). Beyond green: Broad support for biodiversity in multicultural European cities. *Global Environmental Change*, 49, 35-45.
- Fischer, L. K., Neuenkamp, L., Lampinen, J., Tuomi, M., Alday, J. G., Bucharova, A., ... & Klaus, V. H. (2020). Public attitudes toward biodiversity-friendly greenspace management in Europe. *Conservation Letters*, 13(4), e12718.
- Fredrickson, L. M., & Anderson, D. H. (1999). A qualitative exploration of the wilderness experience as a source of spiritual inspiration. *Journal of Environmental Psychology*, 19(1), 21-39.
- Fuller, R. A., & Irvine, K. N. (2010). Interactions between people and nature in urban environments. Pages 137-171 in Gaston KJ, ed. *Urban Ecology*. Cambridge, UK: Cambridge University Press.

- Gaston, K. J., & Soga, M. (2020). Extinction of experience: The need to be more specific. *People and Nature*, 2(3), 575-581.
- Gould, S. J. (1991). Enchanted Evening. *Natural History*, p.14.
- Gross, H., & Lane, N. (2007). Landscapes of the lifespan: Exploring accounts of own gardens and gardening. *Journal of Environmental Psychology*, 27(3), 225-241.
- Haaland, C., & van Den Bosch, C. K. (2015). Challenges and strategies for urban green-space planning in cities undergoing densification: A review. *Urban Forestry & Urban Greening*, 14(4), 760-771.
- Hartig, T., Mitchell, R., De Vries, S., & Frumkin, H. (2014). Nature and Health. *Annual Review of Public Health*, 35, 207-228.
- Heidegger, M. (1962). *Being and Time*, (trans. John Macquarie and Edward Robinson). New York: Harper and Row.
- Hodgetts, D., Stolte, O., King, P., & Groot, S. (2019). Reproducing the general through the local: Lessons from poverty research. In *Subjectivity and Knowledge* (pp. 157-174). Switzerland: Springer.
- Home, R., Bauer, N., & Hunziker, M. (2010). Cultural and biological determinants in the evaluation of urban green spaces. *Environment and Behavior*, 42(4), 494-523.
- Hoyle, H., Hitchmough, J., & Jorgensen, A. (2017). All about the ‘wow factor’? The relationships between aesthetics, restorative effect and perceived biodiversity in designed urban planting. *Landscape and Urban Planning*, 164, 109-123.
- Hoyle, H. (2020). What is urban nature and how do we perceive it? In *Naturally Challenged: Contested Perceptions and Practices in Urban Green Spaces* (pp. 9-36). Springer International Publishing.
- Hunter, A. J., & Luck, G. W. (2015). Defining and measuring the social-ecological quality of urban greenspace: A semi-systematic review. *Urban Ecosystems*, 18(4), 1139-1163.
- Ives, C. D., Lentini, P. E., Threlfall, C. G., Ikin, K., Shanahan, D. F., Garrard, G. E., Bekessy, S. A., Fuller, R. A., Mumaw, L., & Rayner, L. (2016). Cities are hotspots for threatened species. *Global Ecology and Biogeography*, 25(1), 117-126.
- Ives, C. D., Abson, D. J., Von Wehrden, H., Dorninger, C., Klanięcki, K., & Fischer, J. (2018). Reconnecting with nature for sustainability. *Sustainability Science*, 13(5), 1389-1397.
- Jager, B. (1975). Theorizing, journeying, dwelling. In A. Giorgi, C. Fischer, & E. Murray (Eds.), *Duquesne Studies in Phenomenological Psychology* (Vol. 2, pp. 235-260). Pittsburgh, PA: Duquesne University Press.
- Jay, M., & Stolte, O. (2011). A human ecology of urban ravine restoration: A New Zealand example. *Urban Habitats*, 6, 1541-7115.
- Jorgensen, A., Hitchmough, J., & Dunnett, N. (2007). Woodland as a setting for housing-appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK. *Landscape and Urban Planning*, 79(3-4), 273-287.
- Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology*, 15(3), 169-182.
- Keniger, L. E., Gaston, K. J., Irvine, K. N., & Fuller, R. A. (2013). What are the benefits of interacting with nature? *International Journal of Environmental Research and Public Health*, 10(3), 913-935.
- Kibler, K., Cook, G., Chambers, L., Donnelly, M., Hawthorne, T., Rivera, F., & Walters, L. (2018). Integrating sense of place into ecosystem restoration: A novel approach to achieve synergistic social-ecological impact. *Ecology and Society*, 23(4).

- Kowarik, I. (2011). Novel urban ecosystems, biodiversity, and conservation. *Environmental Pollution*, 159(8-9), 1974-1983.
- Lepczyk, C. A., Aronson, M. F., Evans, K. L., Goddard, M. A., Lerman, S. B., & MacIvor, J. S. (2017). Biodiversity in the city: Fundamental questions for understanding the ecology of urban green spaces for biodiversity conservation. *BioScience*, 67(9), 799-807.
- Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology*, 31(3), 207-230.
- Loder, A. (2014). 'There's a meadow outside my workplace': A phenomenological exploration of aesthetics and green roofs in Chicago and Toronto. *Landscape and Urban Planning*, 126, 94-106.
- Longhurst, R. (2006). Plots, plants and paradoxes: Contemporary domestic gardens in Aotearoa/New Zealand. *Social & Cultural Geography* 7(4):581-593. <https://doi.org/10.1080/14649360600825729>
- Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24(4), 503-515.
- McDonald, R. I., Kareiva, P., & Forman, R. T. (2008). The implications of current and future urbanization for global protected areas and biodiversity conservation. *Biological Conservation*, 141(6), 1695-1703.
- McDonald, R. I., & Beatley, T. (2021). Biophilic cities: Vision and emerging principles. In *Biophilic Cities for an Urban Century* (pp. 63-85). Palgrave Pivot, Cham.
- McKinney, M. L. (2006). Urbanization as a major cause of biotic homogenization. *Biological Conservation*, 127(3), 247-260.
- Miller, J. R. (2005). Biodiversity conservation and the extinction of experience. *Trends in Ecology & Evolution*, 20(8), 430-434.
- Miller, J. R. (2006). Restoration, reconciliation, and reconnecting with nature nearby. *Biological Conservation*, 127(3), 356-361.
- Norton, B. A., Bending, G. D., Clark, R., Corstanje, R., Dunnett, N., Evans, K. L., ... & Warren, P. H. (2019). Urban meadows as an alternative to short mown grassland: Effects of composition and height on biodiversity. *Ecological Applications*, 29(6), e01946.
- Pietkiewicz, I., & Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological Journal*, 20(1), 7-14.
- Power, E. R. (2013). Dogs and practices of community and neighboring. *Anthrozoös*, 26(4), 579-591.
- Pyle, R. M. (1978). The extinction of experience. *Horticulture*, 56(1), 64-67.
- Pyle, R. M. (1993). *The thunder tree: Lessons from an urban wildland*. Boston, MA: Houghton Mifflin Boston.
- Relph, E. (1976). *Place and placelessness*. Vol. 67. London, UK: Pion.
- Relph, E. (1985). Geographical experiences and being-in-the-world: The phenomenological origins of geography. In D. Seamon & R. Mugerauer (Eds.), *Dwelling, place and environment: Towards a phenomenology of person and world* (pp. 15-31). Dordrecht: Martinus Nijhoff Publishers.
- Restall, B., & Conrad, E. (2015). A literature review of connectedness to nature and its potential for environmental management. *Journal of Environmental Management*, 159, 264-278.

- Robertson, S. A. (2018). Rethinking relational ideas of place in more-than-human cities. *Geography Compass*, 12(4), e12367.
- Russell, R., Guerry, A. D., Balvanera, P., Gould, R. K., Basurto, X., Chan, K. M., ... & Tam, J. (2013). Humans and nature: How knowing and experiencing nature affect well-being. *Annual Review of Environment and Resources*, 38, 473-502.
- Ryan, R. L. (2000). A people-centered approach to designing and managing restoration projects: Insights from understanding attachment to urban natural areas. In P. H. Gobster & R. B. Hull (Eds.), *Restoring nature: Perspectives from the social sciences and humanities* (pp. 209-228). Washington, D.C.: Island Press.
- Ryan, R. L. (2005). Exploring the effects of environmental experience on attachment to urban natural areas. *Environment and Behavior*, 37(1), 3-42.
- Sanderson, E. W., Walston, J., & Robinson, J. G. (2018). From bottleneck to breakthrough: Urbanization and the future of biodiversity conservation. *BioScience*, 68(6), 412-426.
- Seamon, D. (1985). Reconciling old and new worlds: The dwelling-journey relationship as portrayed in Vilhelm Moberg's 'Emigrant' novels. In D. Seamon & R. Mugerauer (Eds.), *Dwelling, place and environment: Towards a phenomenology of person and world* (pp. 227-245). Dordrecht, Netherlands: Martinus Nijhoff Publishers.
- Seamon, D. (1993). Different worlds coming together: A phenomenology of relationship as portrayed in Doris Lessing's diaries of Jane Somers. In D. Seamon (Ed.), *Dwelling, seeing, and designing: Toward a phenomenological ecology*. New York: State University of New York Press.
- Seamon, D. (2000). A way of seeing people and place: Phenomenology in environment-behaviour research. In S. Wapner, J. Demick, T. Yamamoto, & H. Minami (Eds.), *Theoretical perspectives in environment-behavior research: Underlying assumptions, research problems, and methodologies* (pp. 157-178). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Seamon, D., & Larsen, T. (2021). Humanistic geography. *International Encyclopedia of Geography: People, the Earth, Environment and Technology: People, the Earth, Environment and Technology*. New York: Wiley.
- Shwartz, A., Turbé, A., Julliard, R., Simon, L., & Prévot, A. C. (2014a). Outstanding challenges for urban conservation research and action. *Global Environmental Change*, 28, 39-49.
- Shwartz, A., Turbé, A., Simon, L., & Julliard, R. (2014b). Enhancing urban biodiversity and its influence on city-dwellers: An experiment. *Biological Conservation*, 171, 82-90.
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative Phenomenological Analysis: Theory, Method and Research*. London: Sage Publications Ltd.
- Soga, M., & Gaston, K. J. (2016). Extinction of experience: The loss of human-nature interactions. *Frontiers in Ecology and the Environment*, 14(2), 94-101.
- Soga, M., Gaston, K. J., Koyanagi, T. F., Kurisu, K., & Hanaki, K. (2016). Urban residents' perceptions of neighbourhood nature: Does the extinction of experience matter? *Biological Conservation*, 203, 143-150.
- Soga, M., & Gaston, K. J. (2018). Shifting baseline syndrome: Causes, consequences, and implications. *Frontiers in Ecology and the Environment*, 16(4), 222-230.
- Southon, G. E., Jorgensen, A., Dunnett, N., Hoyle, H., & Evans, K. L. (2017). Biodiverse perennial meadows have aesthetic value and increase residents' perceptions of site quality in urban green-space. *Landscape and Urban Planning*, 158, 105-118.

- Statistics New Zealand. (2017). Subnational population estimates: At 30 June 2017 (provisional). Retrieved from <https://www.stats.govt.nz/information-releases/subnational-population-estimates-at-30-june-2017-provisional>
- Tanner, C. J., Adler, F. R., Grimm, N. B., Groffman, P. M., Levin, S. A., Munshi-South, J., . . . Wilson, W. G. (2014). Urban ecology: Advancing science and society. *Frontiers in Ecology and the Environment*, 12(10), 574-581.
- Tuan, Y. F. (1977). *Topophilia: A Study of Environmental Perception, Attitudes, and Values*. New York: Columbia University Press.
- Taylor, A. F., Wiley, A., Kuo, F. E., & Sullivan, W. C. (1998). Growing up in the inner city: Green spaces as places to grow. *Environment and Behavior*, 30(1), 3-27.
- Turner, W. R., Nakamura, T., & Dinetti, M. (2004). Global urbanization and the separation of humans from nature. *BioScience*, 54(6), 585-590.
- United Nations. (2018). *World Urbanization Prospects: The 2018 Revision, Online Edition*. Retrieved from <https://esa.un.org/unpd/wup/Publications>
- van den Bosch, M., & Bird, W. (2018). *Oxford textbook of nature and public health: The role of nature in improving the health of a population*. Oxford, UK: Oxford University Press.
- van Heezik, Y. M., Dickinson, K. J., & Freeman, C. (2012). Closing the gap: Communicating to change gardening practices in support of native biodiversity in urban private gardens. *Ecology and Society*, 17(1).