Engaging in more-than-conservation in multispecies cities:

A study of One Central Park, Sydney

By Harriet Tasmin Narwal

BLAS, University of Sydney

Master of Research Candidate
Macquarie University
Department of Geography and Planning
Faculty of Arts

Student Number: 44575963

Submitted: 9th October 2017

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Statement by the Author

This thesis is my own work and contains no material published elsewhere or written by another person, except where due reference and attribution is made in the text.

This thesis has not been submitted in whole or in part to any other university or institution for award of a higher degree.

Ethics approval was obtained from the Macquarie University Human Research Ethics Committee prior to the commencement of field work. Protocol number: 5201700250. (Appendix E)

Signature

09/10/2017

Date

Acknowledgements

I acknowledge the traditional custodians of this land, the Aboriginal nations of Australia, and pay my respects to Elders past and present.

I would like to thank my supervisor Emily O'Gorman for providing provoking and thoughtful advice throughout the Master of Research (MRES) journey. This project would not be what it is without her input. I would also like to thank my fellow MRES candidates, Sara Judge, Patrick Mcevoy and Lana Frost for making what could have been an incredibly lonely experience, enjoyable. I would also like to thank their supervisors, Sandie Suchet-Pearson, Andrew McGregor and Fiona Miller for their invaluable comments and advice.

I would like to thank Sheila, Tin and Sebastian Narwal, as well as Micky Grossman and Maddy Miller for their help and support. Particularly, I would like to acknowledge the sustained engagement of Sheila Narwal as an editor and a forgiving friend, in who I could share frustration, confusion and elation.

I do not have the language to thank everyone, human and other-than-human, who has contributed to this project, but to all that is, was, and will be at or in relation to the One Central Park site, I say thank you.

Abstract

This thesis engages with how ‘living walls’ could play a role in familiarising urban human populations with multispecies cohabitation, contributing to an ethic of conviviality in cities. A bricolage approach, comprising semi-structured interviews, observation, participatory photography and review of grey literature, historical sources and ethology literature, has been used to develop a more-than-human geography of the East and West towers at One Central Park. One Central park is a privately owned, mixed-use, green infrastructure precinct in Sydney City with two residential buildings that are characterised by living walls filled with vertical gardens and planter boxes. Bringing more-than-human geography into close dialogue with approaches in the broader environmental humanities, this project looks to engage with the unequal experiences of dwelling in multispecies cities in the Anthropocene, and advocates for the practice of ‘more-than-conservation’ in the policy and planning of cities. Using a storied approach, this thesis focuses on three key themes: temporality, biocultural belonging, and multispecies conflicts. It argues that living walls provide a forced close proximity between human and nonhuman dwellers that, if coupled with facilitated engagements and thoughtful urban design, could provide opportunities to foster attentiveness to nonhumans, contributing to an ethic of conviviality among residents. If this coupling does not occur this kind of intervention may instead entrench existing dualisms, like that of nature/culture and wild/domestic, within the city

1. Introduction

1.1 One Central Park, Sydney

One Central Park is a green infrastructure precinct in Chippendale, Sydney, Australia that consists of several mixed-use buildings, a public park, shopping district, and an underground central thermal plant, tri-generation system and blackwater treatment plant (Figure 1). My research at One Central Park focuses on the East and West residential towers in the precinct, which are characterised by their living walls filled with vertical gardens and planter boxes. Together, these towers can be seen as an attempt to 'transform environmental commitments into visible architecture' (Nouvel and Beissel 2014, p. 14). I use the term 'living wall' as defined by Francis and Lorimer: 'A wall that incorporates vegetation in its structure or on its surface, and which does not require the plants to be rooted in substrate at the base of the wall as in a green façade' (2011, p. 1431). Each apartment in the East and West towers has either an open balcony with small amounts of vegetation (Figure 3), enclosed balconies, with planter boxes on the outside (Figure 2), or enclosed windows with vertical gardens and/or planter boxes outside (Figure 2). Residents have been living in the East and West towers since 2013 and the precinct is due for completion in 2018.

The reason I was drawn to engage in research at One Central Park is because it provides opportunities for an embodied questioning of constructions of the dichotomies, 'nature' and 'culture', in the city. The use of a plethora of materials and species in the construction of the buildings, prompted me to consider their 'naturalness' and their 'urbanness'. For instance, why might a native plant on the side of one of the buildings be seen as natural by residents, but, the metallic, stainless steel cables that provide support for plants on the buildings, be considered human-made? Both are located in an urban area, humans have largely determined the current place for both, and both are derived from what could be considered 'natural' materials. As one of the tallest green buildings in the world within one of the most cosmopolitan cities in the world, One Central Park provides a new and interesting opportunity to probe these kinds of biocultural questions. This can be achieved through an exploration of the different ways in which human and nonhuman dwellers may utilise the buildings compared to the intended uses conceived by human designers.

Figure 1: One Central Park precinct masterplan (Fraser Property Australia and Sekisui House Australia n.d.)

1.1.1 A focus on Sydney City

> 'Sydney… represents the great experiment of the Enlightenment – the proving ground in which new philosophies and ideas were to be tested. What the savants of the Enlightenment did not have, however, was knowledge of the deep history of the region in which their experiment was being carried out... This was a critical lack, for it was to be the mix of earth, water and people that was to determine the shape of the city' (Flannery 2000, pp. 5–6)

I have chosen to focus on Sydney City because it provides a complex, current and well documented example of the creation and continued development of a cosmopolitan city in the Global North. It is a city that has been shaped by the relationships between the Hawkesbury sandstone it is built upon, vegetation, nonhuman animals, humans, topography, soil, water and buildings, amongst others. Sydney's European history, entails dispossession of both indigenous humans and 'native' nonhumans, as well as the introduction of 'exotic'/'invasive' humans, and nonhumans. The continued dispossession, and dispersal of Sydney dwellers has ensured that Sydney is a place of cosmopolitan, biocultural diversity. This diversity provides a space to question and unsettle well-established ideas around natural/urban, native/exotic, domestic/wild and human/nature.

Current biodiversity conservation strategies that are popular in the Greater Sydney region rely on the idea of an assumed historical baseline of 'naturalness' (Alagona *et al.* 2012), or 'pristineness' (Hinchliffe 2008, Head 2012) that existed pre-invasion. The Sydney region is

highly biodiverse and its 'pristine' past is used to justify conservation of those deemed by managers, to be 'native' nonhumans that will contribute to a specific kind of biodiversity in the region. However, the biological diversity in Sydney's urban areas comprises a 'vast array of exotic fish, reptiles, birds and mammals, including Australian species exotic to the region, kept by people as companion animals, pets and working animals…[as well as] their feral counterparts' (Recher 2010, p. 125). In urban environments, these nonhumans are rarely considered in conservation efforts, except if they provide habitat for a native species that has been deemed threatened.

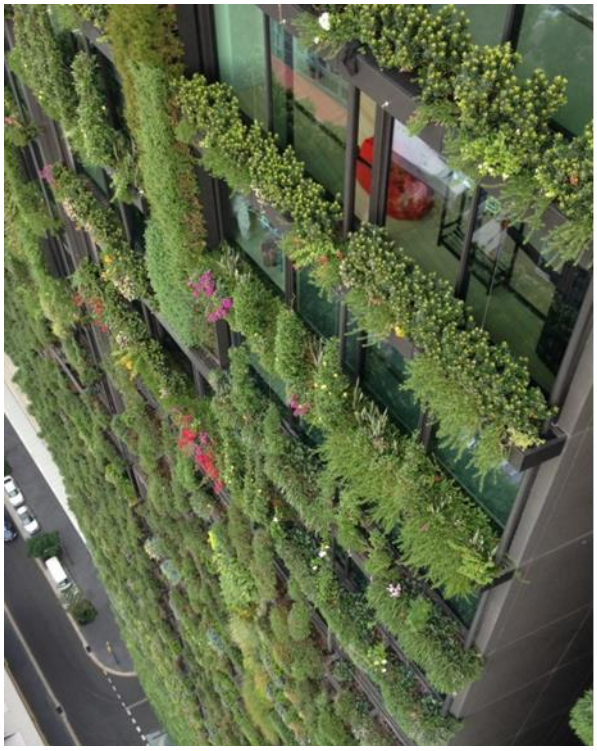

Figure 2: Planter boxes and vertical gardens on the North side of the East tower (Junglefy 2017)

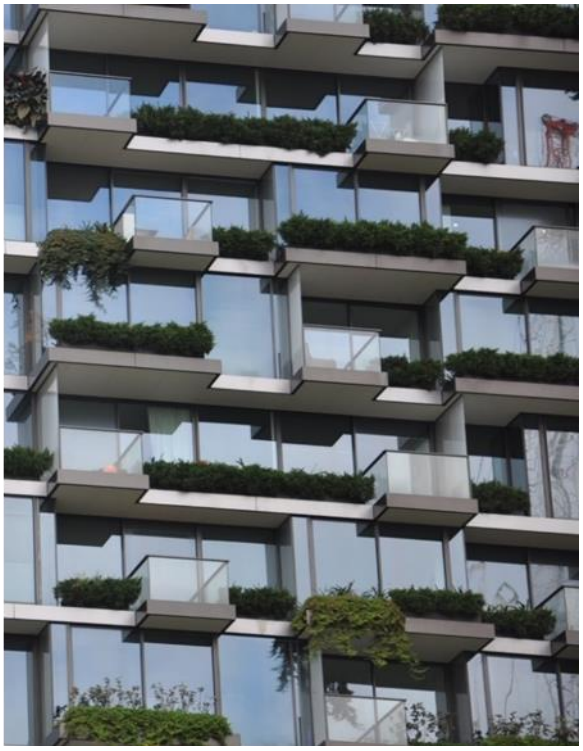

Figure 3: Enclosed and open balconies on the South side of the West tower (Photo taken by Author)

1.2 Research question and aims

With a more-than-human geography of One Central Park, I aim to answer the question, how can living walls, as a type of green infrastructure, help to familiarise urban human populations with multispecies cohabitation, contributing to an ethic of conviviality in cities? In order to help answer this broader question I will be engaging with three questions that follow from this: what kind of multispecies interactions do living walls promote at One Central Park? What would an ethic of conviviality look like in an equitable multispecies city? And, how do contested biocultural relationships affect belonging at One Central Park?

This project is intended as a pilot study for more extensive research and will be used to determine the challenges to, and possibilities for, this kind of green infrastructure intervention

in a western, cosmopolitan city. It is also a chance to reflect on both the opportunities for, and challenges to, engaging in multispecies research, not only in cities but in privately owned buildings that have limited public access. The aims of this project are to provide a case study of humans living with embedded nonhuman habitats in close proximity, in a city, and to identify the factors that may affect multispecies coexistence. The East and West towers at One Central Park have been chosen as the focus of this project because they possess the most extensive embedded living wall habitat in Sydney. They are the first buildings of their kind in the Southern hemisphere and were the first to be built, and inhabited, in the One Central Park precinct.

In this study I have utilised a storied approach, which has allowed me to bring more-than-human geography and broader environmental humanities theory into close conversation, in order to analyse the themes of temporality, biocultural belonging, and multispecies conflict. In my questioning of what an ethic of conviviality might look like in an equitable multispecies city, I found that an ethic of conviviality at One Central Park would require a human attentiveness to human entanglements with, and vulnerabilities to, nonhumans. This attentiveness would entail noticing formerly unacknowledged physical entities and important multispecies relationships (Taylor and Pacini-Ketchabaw 2015, van Dooren *et al.* 2016, Tsing 2017). I argue that living walls provide a forced close proximity between human and nonhuman dwellers that in turn provides human dwellers with an opportunity to foster their attentiveness through development of noticing skills. For this to be carried out effectively, this close living should be coupled with facilitated engagements and thoughtful urban design. If it is not, it runs the risk of further engraining already existing dualisms that are present in human urban populations, by forcing them into zones of conflict and competition with nonhumans.

1.3 Modernity and the Anthropocene

Historically, both human and nonhuman dwellers in this and many other areas have been displaced and dispossessed in the name of modern western prosperity and progress (Cathcart 2009, Porter 2014). The displacement that has occurred as a result of the establishment, and continued development of cosmopolitan cities, has been enforced and reinforced in many cities through policy and legislation (Curry *et al.* 2012; Hinchcliffe & Whatmore 2006; Houston *et al.* 2017).

Many scholars now argue that the processes that have been utilised in attempts to carry out visions of modernity, such as industrialisation, colonial expansion, homogenisation of land use, scientific enlightenment and continued engagement with extractive resource intensive

economies, have led to a set of problems that the globalised world must now collectively face. We must solve these problems if we are to ensure the survival and continued flourishing of future human generations (Crutzen 2002, Acampora 2004, Rockström *et al.* 2009, Fincher and Iveson 2015). Responses to these complex problems, of disruption to the carbon cycle, nitrogen cycle, rate of extinction and ocean pH levels, are being mobilised utilising the term the Anthropocene (Crutzen 2002, Rockströ*m et al*. 2009, Nixon 2014, Haraway 2015, Lövbrand *et al.* 2015). The use of this term is contentious, but provides an opportunity to analyse the inequality present in the experiences of, and contributions to, changes to the Earth's systems. I use the term Anthropocene, as Donna Haraway (2015) suggests, to denote a boundary event. It is a transitionary period that should be 'as short/thin as possible' (2015, p. 160), that should provide a platform for questioning what the best solutions to these problems really are, and for whom.

Western modernisation has constructed the modern city as a fetishised human oasis, a marker of technological, political and social advancement, which is separate from and in control of 'nature' (Braun 2005, Franklin 2016). With the projected growth of human urban populations worldwide, and a popularised fear of ecological collapse, a range of solutions are being proposed to stay within the planet's 'safe operating space' (Rockström *et al.* 2009). In relation to cities, these include: acknowledgement and cultivation of urban ecosystem services, payment for environmental services (PES) and reconciliation ecology, amongst others. Some of these strategies, such as ecosystem services, entail encouraging animals and plants to live in cities alongside human populations. However, only species with instrumental value to humans are being considered in this push for multispecies urban cohabitation. Unwanted species, those that flourish against human urban design in close proximity to human dwellers, are still demonised, culled and removed (van Dooren and Rose 2012, Rose 2015, McKiernan and Instone 2016, Houston *et al*. 2017).

Within the context of the kind of approaches outlined above, my research is undertaken with a commitment to the view that, in Australia, humans need to learn to coexist with nonhumans more equitably in urban spaces, in both comfortable and uncomfortable situations (McKiernan and Instone 2016). I particularly engage with two different, but interlinked, ways that comfortable and uncomfortable co-existence can be fostered in cities. The first is exposure, such as ensuring more nonhuman habitats exist in urban environments. The incorporation of living walls into infrastructure provides exposure. The second, which is reliant on responses to exposure, is unsettling pest narratives and hyperseparations. This entails providing urban dwellers with the tools to reassess their relationship with 'unloved

others'; that is nonhumans who are seemingly uncharismatic to humans, those who 'are less visible, less beautiful,[and] less a part of our cultural lives' (Rose and van Dooren 2011, p. 1). Facilitated engagements, including citizen stewardship, is one type of tool. One Central Park has been chosen as the site of study for this research because its living walls provide the conditions to engage with both kinds of learning. It is a mixed-use, privately owned development that houses humans, 350 different plant species, bees, wasps, a pair of peregrine falcons and a range of other species that are more commonly found in Sydney city. Using approaches within more-than-human geographies the intricacies of these types of learning can be engaged with.

1.4 Dualisms and hyperseparation

Western modernity has a foundation in dualisms and hyperseparation. Val Plumwood's (2002, 2009) concept of hyperseparation highlights, and critiques, the categorisation of humans as a special species, and non-humans as others that are reducible to their usefulness to humans. In this system, the socially constructed, homogenised entities of 'humans' and 'nature', are put in stark opposition to each other, usually with the desired effect of subjugating one to the other. Therefore, as Uggla (2010) argues, categorising 'nature' is a deeply value-laden act, as it entails drawing boundaries and assigning priorities.

Historically, 'nature' has been categorised in Western thought as something to exploit, dominate or preserve (Uggla 2010). The modern, cosmopolitan city can be seen as a result of these acts. A place, seemingly devoid of nature, where temperatures are moderated and materials are used to excess. In the Anthropocene, the destruction of vegetation for the development of cities is now acknowledged and countered where possible, with the preservation of 'natural' environments in a different locale.

Framed within the Anthropocene, cities provide an interesting space in which to rethink the dualism of human/nature, with the goal of unsettling the idea that cities are purely human spaces. With the rising popularity of strategies that look to incorporate nonhuman habitat into urban infrastructure, the binary thinking that has played such an integral part in the dwelling and development of cities, is now being reconsidered by scholars, planners and local councils (City of Sydney 2013). This reconsideration embraces a re-evaluation of human identity that 'affirms inclusion in animal and ecological spheres' (Plumwood 2003, p. 2).

1.5 More-than-conservation in cities

Traditionally, conservationists, governments, planners and environmental consultants have focused on biodiversity in the city in a way that further engrains a dualism between humans

and nature. In response to urban developments, biodiversity is conserved or contributed to, through the offsetting of nonhuman habitat to a different locale, the integration of habitat into infrastructure, or the protection of habitat despite development. Some of these strategies help to 'divide and subdivide places, people and resources into manageable units' (Howitt 2001, p. 233). In the Anthropocene, humans and their urban developments have been perceived as an unstoppable force that cannot progress without the destruction of nonhuman habitat. As mentioned above, this destruction can be assessed and mitigated by governments and consultants through offsetting, which entails the allocation of numeric values to species due to their biodiversity value. In this system, the destruction of nonhuman habitat is penalised not because it undermines the value and rights of nonhumans, but because it undermines human resilience, via ecosystem resilience. In NSW, amendments to threatened species legislation in 2006 and 2016 (Burgin 2008, Hillman and Instone 2010, NSW Government 2017) have ensured the evolution and popularity of the Biodiversity Banking (BioBanking) system. These amendments have also brought questions of valuation to the fore. In particular, whether numeric valuation of biodiversity values can truly help to tackle the problems of the Anthropocene, as lived in the city.

I have developed the term 'more-than-conservation' to classify conservation efforts or theories that acknowledge the continual reconstitution of worlds (materials, knowledges, technologies, infrastructure, economy, and so on), and that look to decentre the human in considerations of the development, dwelling, design and conservation of cities. These goals are being engaged with by a range of academics. Donna Haraway's (1988, 2003, 2008) seminal work on co-becoming, and many of those who have been influenced by it, have informed my conceptual understanding of world making and the importance of encounter. Building on Haraway's work, Jamie Lorimer explores conservation after nature, whereby conservation is a 'set of embodied and skilful processes of learning to be affected by the environment' (2015, p. 5). In his conceptualisation of a multinatural approach to conservation, Lorimer focuses on conservation scientists. More-than-conservation builds on the work of authors such as Jamie Lorimer and Donna Haraway, as well as Val Plumwood, Anna Tsing, Deborah Bird Rose and Thom van Dooren, and focuses on human/nonhuman interaction in the city prior to, during and after its development.

More-than-conservation is grounded in multispecies justice (Houston *et al.* 2016, Kirksey 2017, Pulido 2017) instead of human-centred environmental justice[1]. The difference between

[1] 'The principle that environmental costs and amenities ought to be equitably distributed within society' (Harner *et al.* 2002, p. 318)

the two is the extension of acknowledgement of the inequality present in experiences of the Anthropocene to nonhumans. This is done to better align with the swath of existing systemic vulnerabilities that exist across human and nonhuman populations. It aims for something different to, and more than, traditional anthropocentric forms of conservation pertaining to the development of cosmopolitan cities. It is attentive to the intrinsic rights and value of nonhumans, and tries to provide integrative solutions for living in cities that are both comfortable and uncomfortable for all parties (McKiernan and Instone 2016). Part of fostering this mutual comfort/discomfort, is fostering an ethic of conviviality (van Dooren and Rose 2012) and an acknowledgement of well-being that is not isolated to the human but instead one that acknowledges the dynamic and shifting relationships that constitute what it is to be human.

1.6 Overview of chapters

The following chapter provides an overview of research on conservation and dwelling in the city, where I develop my conceptual framework and review key academic sources to situate my research within particular sets of scholarship. I then outline my methodology, a bricolage more-than-human geography, and reflect on some of the strengths as well as limitations of this approach. In the three chapters that follow, titled storying place I, II and III, I focus on the themes of temporality, biocultural belonging and multispecies conflict that emerged in this research. I also discuss key findings from my research in relation to current research in the environmental humanities. The conclusion argues for the implementation of living walls in residential buildings to be coupled with facilitated engagements and thoughtful urban design and makes recommendations for future research.

2. Background: Conservation and Dwelling in the City

The conception of the human-centred 'civilised' city is being deconstructed and reimagined by academics from a multitude of fields and disciplines including anthropology (Ingold 2000), philosophy (Acampora 2004), cultural geography (Braun 2005, Hinchliffe and Whatmore 2006, Hinchliffe 2008, Francis and Lorimer 2011, Adams 2016, McKiernan and Instone 2016, Houston *et al.* 2017), sociology (Geisler 2010, Moore and Kosut 2014, Franklin 2016) and the interdisciplinary environmental humanities (van Dooren and Rose 2012).

One way in which this is being done is through research on multispecies cohabitation in cities in the Anthropocene era. The main point of distinction within this literature is the valuation and resulting rights that are attributed to nonhumans in the conceptual framing of research. Historically, the most dominant theoretical framing of research on cities has been to attribute extrinsic value[2] and rights to nonhumans, defining their place in the city as wholly determined by the ecosystem services or biodiversity value that they can provide human populations in attempts to support human resilience and well-being (Gómez-Baggethun *et al.* 2013, Schewenius *et al.* 2014, Vale 2014, Cooke *et al.* 2016). Most of the research in this space speaks of some form of conservation, whether it is conservation of ecological stability, conservation of particularly 'significant' species, conservation of important habitats and even conservation of human comfort and well-being. Alternatively, there is a trend in current research that situates the human ecologically as a starting point for rethinking rights and relationships between species (Cronon 1996, Latour 2004, Haraway 2008, Plumwood 2009, Rose 2013, Bawaka Country *et al.* 2015). This rethinking of human/nonhuman relations acknowledges the co-constitution of life and death as an interspecies dynamic (Andersson *et al.* 2014, Head *et al.* 2014, Gibson-Graham and Miller 2015, Houston *et al.* 2016, van Dooren *et al.* 2016) and advocates for an ethic or politic of conviviality (Acampora 2004, Hinchliffe and Whatmore 2006, van Dooren and Rose 2012, Head *et al.* 2014, Franklin 2016, McKiernan and Instone 2016, Houston *et al.* 2017).

As shown in Figure 4, I have roughly divided research on multispecies cohabitation in cities into anthropocentric conservation, biocentric conservation and more-than-conservation. These groupings are not fixed, with literature traversing the boundaries of all three. Anthropocentric conservation primarily considers humans in decision making and any actions are undertaken

[2] Value attributed to an entity that satisfies a human desire or makes a human being better off, economically or physically (Sarkar 2005)

with the justification of human benefit, even if they involve nonhumans. Biocentric conservation could be seen as the other end of the spectrum to anthropocentric conservation, with the aim of promoting larger areas of protected wild and smaller human populations (Hunter *et al.* 2014). More-than-conservation acknowledges that worlds are constituted, and continually re-constituted, by multispecies relations (Ingold 2000, Haraway 2008, Plumwood 2009, van Dooren and Rose 2012, Bawaka Country *et al.* 2015, Gibson-Graham and Miller 2015, Wright 2015).Following calls for inclusive conservation (Tallis and Lubchenco 2014), I have coined the term 'more-than-conservation' to classify conservation efforts or literature that, unlike anthropocentric conservation, looks to decentre the human in considerations of the development, design, dwelling and conservation of cities, and, like biocentric conservation intrinsically extends considerations of value and rights to nonhumans. More-than-conservation is not applicable to all types of cities but it fits a host of problems that are more commonly found in cities in the Global North. I believe more-than-conservation is an important concept and practice because it has a focus on working with, and reconceptualising urban environments instead of widening the already existing gap between the urbanised city and the protected and utilised 'wild'. It builds on the positive efforts of traditional anthropocentric conservation, but involves more than just human actors, more than just human cities and more than just human rights.

In response to the trend towards reliance on anthropocentric conservation by governments, developers and consultants, my research advocates for the practice of more-than-conservation in cities. It is situated at the nexus of multispecies justice (Lorimer 2012, Houston *et al.* 2016, Kirksey 2017), more-than-human geographies (Braun 2005, Whatmore 2006, Lorimer 2012), and the broader interdisciplinary environmental humanities (Rose *et al.* 2012, Castree 2014, Neimanis *et al.* 2015). This combination of approaches aids a thorough engagement with the dynamism present in the city, and an inclusion of those who are usually invisible in considerations of conservation. In producing a more-than-human geography (Braun 2005, Whatmore 2006, Panelli 2010) of the East and West towers at One Central Park in Sydney, I aim to better understand the place of living walls as a form of more-than-conservation that contributes to ethical multispecies cities[3]. This contribution comes the form of providing the conditions for a human reconsideration of sharing spaces with nonhumans, in both comfortable and uncomfortable situations.

[3] 'Cities that provide space for the flourishing of as many different forms of life as possible' (van Dooren and Rose 2012, p. 17)

2.1 Justice and resilience in conservation

The term conservation 'implies the keeping or preservation of something for future use and human benefit' (Gregory *et al.* 2009, p. 125). In response to human induced ecological change and the goal of keeping optimum and stable conditions, conservation is being relied upon discursively and practically by a range of human stakeholders. In research that focuses on the cohabitation or separation of humans and nonhumans in cities, the most dominant iteration of conservation is that of biodiversity conservation. Literature in this space usually engages with the tension between urban development and conservation imperatives, providing justifications for the preservation or removal of different species, in terms of resilience and/or justice (Braun 2005, Geisler 2010, Snep *et al.* 2011, Sargolini 2013, Schewenius *et al.* 2014, Soga *et al.* 2014, Cooke *et al.* 2016, Houston *et al.* 2016).

Resilience is both a concept and a practice, and is largely concerned with ways that community development can feed into disaster preparation to meet challenges such as those produced by climate change (Vale 2014). In the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014), resilience featured heavily as a justification for action across scales. This emphasis on the necessity of resilient communities, individuals, ecosystems and economies is clearly expressed in research on urban multispecies cohabitation or separation, most prominently but not exclusively from the natural sciences.

Hinchliffe (2008) claims that conservation is based around an understanding of 'nature' as a pre-constituted entity. When 'nature' is perceived as a pristine object, separate from human populations that only need be conserved as a resource or tool for human benefit (Hinchliffe 2008, Plumwood 2009), true resilience cannot be obtained. In order to engage with the inequalities present in current resilience-based urban conservation (Vale 2014), our historic understanding of boundaries, belonging and significance need to be rethought. As the current set of problems that we face in what has been termed the Anthropocene (Nixon 2014, Haraway 2015) were born out of the humanist pursuit and implementation of modernity (Plumwood 2009, Curry *et al.* 2012, Rose 2013, Haraway 2015), it seems nonsensical to assume that we can provide lasting solutions to these problems using the same thinking that created them.

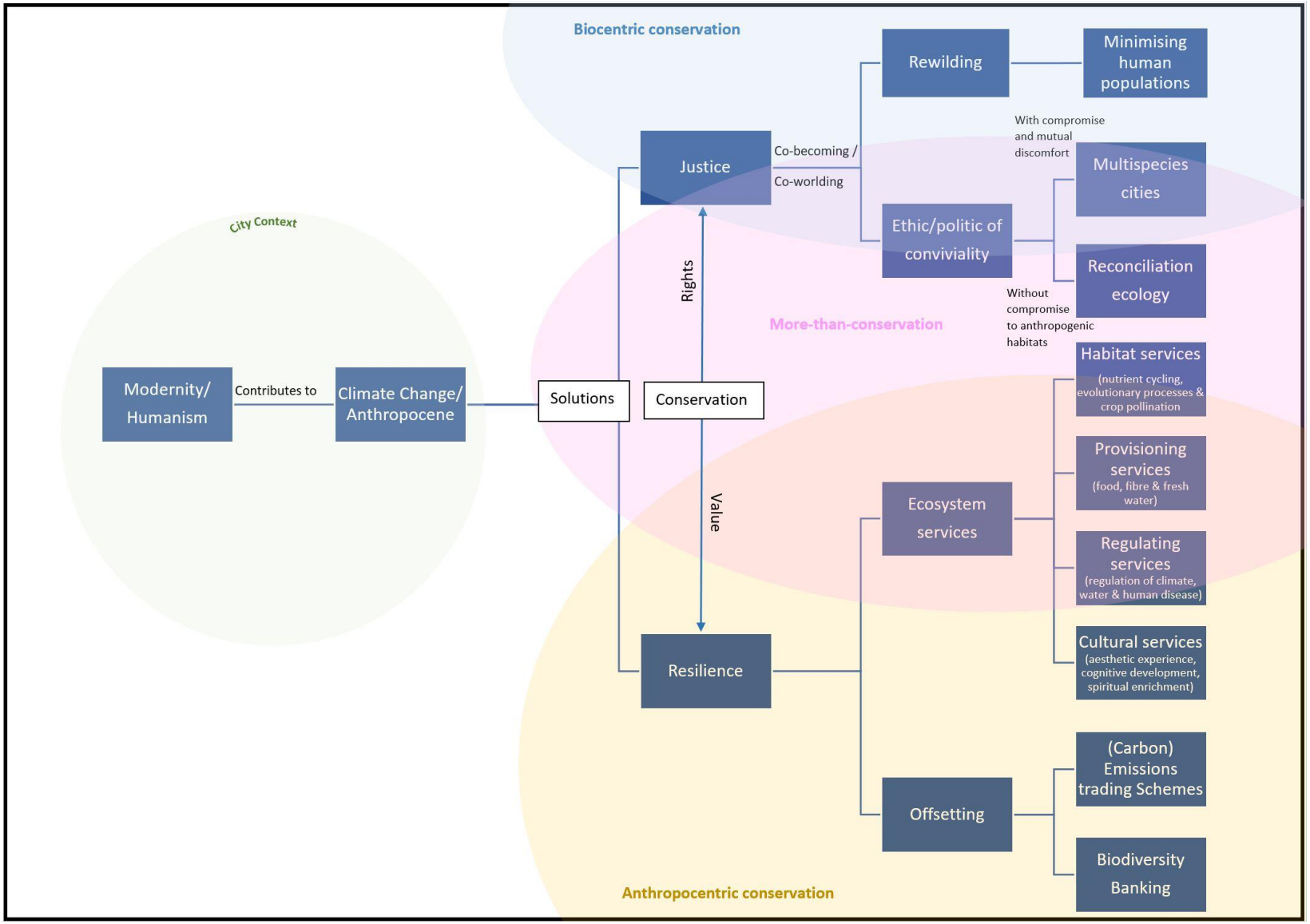

Figure 4: Anthropocentric conservation, biocentric conservation and more-than-conservation in urban multispecies cohabitation literature

2.2 Anthropocentric conservation

Anthropocentric conservation is founded on hyperseparation (Plumwood 2009). The categories of 'humans' and 'nature' are utilised to create a hierarchy of care, with humans at the top and those below further categorised and organised by their contributions or significance to human populations, or rather, to particular members of human populations. In the context of urban multispecies cohabitation or separation, conservation efforts ensure that whether a being is understood to belong in the city, is determined by the perceived value they have for humans (biodiversity, carbon sequestration, temperature maintenance, air quality, well-being) and how much their presence will compromise already existing human habitats (Stokes and Chitrakar 2012). This sentiment is demonstrated in literature that claims nonhumans should belong in cities purely to provide ecosystem services, or should be removed from cities and put on the urban periphery, in order to offset the loss of their newly urbanised counterparts

2.2.1 Ecosystem services: utilising greenness

In response to traditional biocentric forms of conservation, Kareiva and Marvier argue that a successful conservation strategy must 'simultaneously maximize the preservation of biodiversity and the improvement of human well-being' (2012, p. 962). Supporters of ecosystem services frame them as important for human well-being and urban resilience; as a way to reconnect cities to the biosphere (Gómez-Baggethu*n et al*. 2013, Andersson *et al*. 2014). As shown in Figure 4, there are four kinds of services: provisioning, regulating, cultural and habitat (Kumar 2010). In this system, urban is seen as 'unnatural' and problematic, and the implementation of ecosystem services such as green infrastructure, vegetated areas and water bodies (Douglas 2012) is believed to be a much needed solution for the exponentially growing problem of urbanisation, because there is a perceived mutual benefit for humans and the 'natural' world they rely upon.

Some literature that advocates for ecosystem services moves past the definition of ecosystem services as a function of 'nature', brought to humans, for humans and instead tries to acknowledge the sociocultural meanings of urban ecosystems (Kaltenborn and Bjerke 2002, Home *et al.* 2010). Herein lies one of the biggest tensions between anthropocentric conservation and more-than-conservation; the difference in that which is encompassed in considerations of the sociocultural. In research that engages with the efficacy of urban ecosystem services, sociocultural includes only humans; human understandings of how ecosystem services influence or affect their social life, either individually or as a community. Multispecies cities literatures, whether from urban political ecology, environmental

philosophy/anthropology or geography, look to extend considerations of sociocultural to the more-than-human. This extension is grounded in an understanding that humans have never been only human, but have instead, always been part of interconnected multispecies networks (Latour 1993, Haraway 2008).

Within an ecosystem services framework, the East and West towers at One Central Park can be understood to provide services, both to the residents that live there, and members of the public that come into close contact with it. The buildings provide cultural services and have the potential, if combined with other buildings like them, to provide regulating services. The cultural services that the thick vegetative cover fosters are human well-being and aesthetic experience. Green cover on buildings provides regulating services by helping to reduce the urban heat island effect. In their study on central Sydney, Sharifi and Lehmann (2015) found that a 10% increase in urban greenery in the city could decrease the temperature in central Sydney by 0.6°C. Buildings like those found at One Central Park are one such strategy that can help to provide this increase in urban greenery.

2.2.2 Payment for environmental services (PES): Offsetting

Offsetting is a neoliberal form of conservation and is predominantly anthropogenic. Subsets of this strategy thrive on the right of most humans to continue to function in a business as usual manner. The only human behavioural change that is required is that of individuals who have historically not made any major contribution to the human induced changes to the Earth's systems that offsetting is being utilised to counter (Ferraro 2011, Milne and Adams 2012). Literature that focuses on offsetting schemes, such as BioBanking schemes, engages with issues of injustice and critiques the inability of the goals and targets of these systems to deal with complexity (Burgin 2008, Robinson 2009, Hillman and Instone 2010, Ferraro 2011, Milne and Adams 2012). PES is one of the most popular forms of conservation in modern day planning and management. It has relevance for environmental policy-makers and managers (Jackson and Palmer 2015), but it has also come under a considerable amount of scrutiny.

A key criticism for offsetting of biodiversity loss is that it reinforces a nature/culture dualism (Figure 5), cementing the idea of separate humans and, nonhumans or 'natural' places (Burgin 2008, Robinson 2009, Hillman and Instone 2010). The 'like for like' swap that is attempted in offsetting biodiversity loss (Burgin 2008), in no way acknowledges or engages with the meaningful and storied worlds in which humans and other species exist (Plumwood 2009, van Dooren and Rose 2012). Furthermore, it does not properly acknowledge the interdependencies and entanglements that overlap in any given space (Haraway 2008, 2015, Kirksey and Helmreich 2010, Rose *et al.* 2012, van Dooren and Rose 2012, Rose 2013,

Dittmer 2014, Head *et al.* 2014, Johnson *et al.* 2014, Moore and Kosut 2014, Lövbrand *et al.* 2015, Franklin 2016, Pacini-Ketchabaw *et al.* 2016, Houston *et al.* 2017)

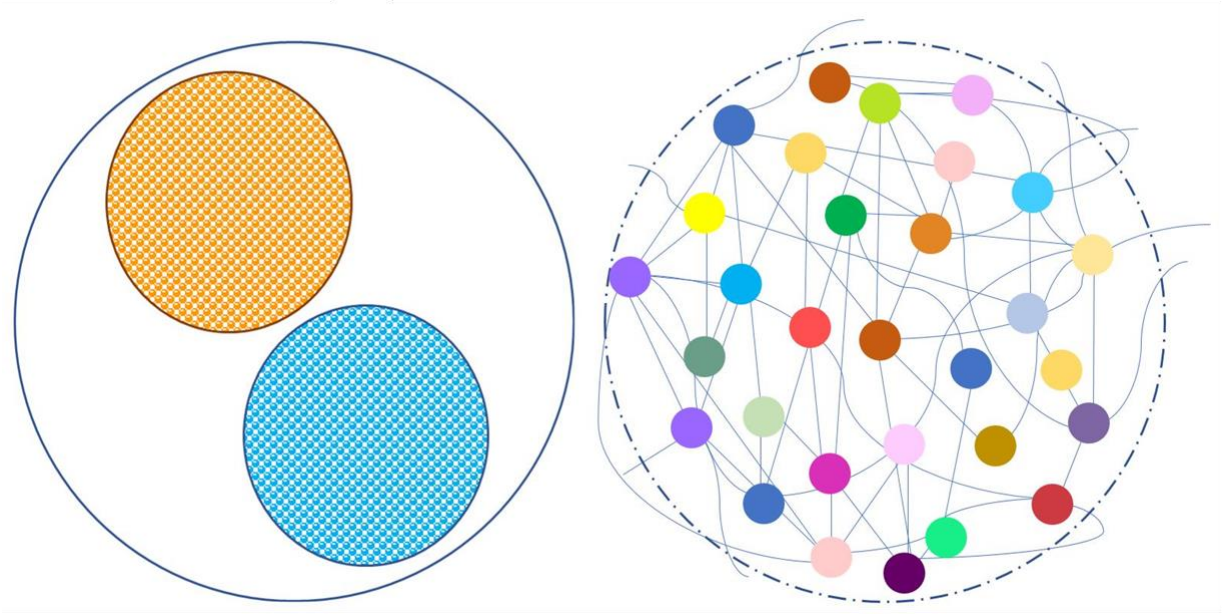

Figure 5: Simple models representing hyperseparation and dualism (left) and relational co-worlding (right)

2.3 Biocentric conservation

Some prominent biocentric conservationists, such as Noss *et al.*(2012) and Caro *et al.*(2012), claim that conservation should ensure that at least 50% of the Earth's land area is devoted to 'wild nature'(Hunter *et al.* 2014). Michael Soulé states that the goal of conservation is to protect the Earth's diversity of wild plants, animals and ecosystems, ensure continued biological evolution and speciation, and ensure opportunities for current and future generations 'to benefit spiritually and physically from wildness and the diversity of wild beings'(2013, p. 74). I argue that Soulé's biocentric representation of conservation biology instils the romantic notion of an isolated wild that should be protected (Cronon 1996, Uggla 2010), even if for its own sake, instead of human benefit.

2.4 More-than-conservation

As stated above, conservation is popularly centred around the preservation of a perceived baseline of 'naturalness' (Hinchliffe 2008, Alagona *et al.* 2012, Lorimer 2015) and geared toward human benefit (Gregory *et al.* 2009). There is a trend in environmental philosophy, urban political ecology, animal studies, cultural geography, sociology and anthropology scholarship towards decentring the human in considerations of design, development, dwelling and conservation in cities. This research either directly, or indirectly, advocates for an ethic or politic of conviviality (Acampora 2004, Francis and Lorimer 2011, Stokes and Chitrakar 2012, van Dooren and Rose 2012, Head *et al.* 2014, Gibson-Graham and Miller 2015,

Franklin 2016, Houston *et al.* 2016, 2017).What differs in conceptions of conviviality is the amount of personhood that is attributed to nonhumans in research. For example, Hinchliffe and Whatmore (2006) explore liveable cities and describe humans and nonhumans as parts of an ecological whole. Alternatively, van Dooren and Rose focus on trying to understand the many ways that 'specific nonhumans understand and relate to their specific city places' (2012, p. 21). Some of the strategies put forward to foster the latter form of conviviality, include attentiveness (van Dooren *et al.* 2016), rethinking engrained hyperseparation (Plumwood 2009) and uncomfortable living-with (McKiernan and Instone 2016). In the debate between anthropocentric and biocentric conservation, it seems that a meeting point is needed. In the urban context. More-than-conservation could be such a place, where the intrinsic value and rights of both human and nonhuman actors are acknowledged, and the ecology of the city is recognised. Furthermore, acknowledgement of economy as a multispecies achievement (Gibson-Graham and Miller 2015) might help these two kinds of conservation to meet.

2.4.1 Reconciliation ecology

Reconciliation ecology, coined the 'third strand' of conservation (Rosenzweig 2003), is acknowledged as an achievable strategy for urban multispecies cohabitation, albeit one with limitations to overcome (Geisler 2010, Francis and Lorimer 2011, Stokes and Chitrakar 2012). It is a biodiversity conservation strategy that looks to modify urban environments, to promote nonhuman use and foster ecological stewardship among human populations (Rosenzweig 2003). Kidwell (2016) argues that reconciliation ecology is a response from the environmental sciences to the dualistic creations of separate spaces for 'humans' and 'nature'. However, it is in the persistence of this perceived hyperseparation that some of the greater challenges of implementing reconciliation ecology lie.

Francis and Lorimer (2011) identify living walls and roofs as a bottom up strategy with reconciliation potential. They state that these strategies need to be coupled with top down enhancement of urban infrastructure and parks, by both local and regional authorities (Francis and Lorimer 2011). They claim that citizen science in the maintenance of living walls and roofs is integral in ensuring their efficacy. This sentiment is supported by Stokes and Chitrakar's (2012) study of human perceptions of embedded nonhuman habitats in Brisbane's CBD. From quantitative and qualitative data gathered from questionnaires filled out by a sample of Brisbane residents, they found that support for reconciliation of urban ecology, in the form of artificial animal habitats, was contingent on there being distance between humans and 'wildlife' and there being no compromise to the already existing anthropogenic habitat (Stokes and Chitrakar 2012). The common theme in literature on urban multispecies

cohabitation is the unwillingness of humans to withstand any discomfort in order to share their cities with nonhumans.

I will be looking at the East and West towers at One Central Park as an attempt to embed nonhuman habitat, with vegetation that provides opportunities for more-than-human interaction. The buildings provide places for plants to flourish and perish, water to drip and enrich, for birds to nest, bees to pollinate, and for insects to permeate the boundaries of the human home.

2.4.2 Multispecies cities: uncomfortable liveability

Literature that advocates for multispecies cities is not about the preservation or removal of species but instead about an attentiveness to the place-making and multispecies relations that could, or already do, exist in cities. The significance of a nonhuman being is based on its own intrinsic value and its role in constituting the livelihoods of human or other nonhuman beings and vice versa. Belonging is understood as an emergent co-becoming (Wright 2015), an unfixed, relational construction of biology and culture, that can be made and remade (O'Gorman 2014).

One of the main issues in research that extends cultural consideration to the more-than-human, is the challenge of multispecies communication. To counter it, authors promote the exploration of different forms of communication that fall outside of written or spoken word. van Dooren & Rose (2012, 2016) engage with the use of narrative as a tool to overcome this issue. The nonhuman narrative, how a range of species understand and relate to particular spaces, is visible to others through an attention to their storying of place. They provide an engagement with alternative visions of the cityscape through the use of case studies that follow the ways little penguins and flying foxes both shape and are shaped by the landscape in their storying of places. In their review of multispecies ethnography, Kirksey and Helmreich (2010) highlight the role of engaging with unfamiliar sensoriums in research. They promote the ability to use 'different kinds of touch, smell, taste, and vision' (Kirksey and Helmreich 2010, p. 565) as an important part of decentring the human.

2.4.3 Biocultural Belonging

> 'Belonging is never simply a question of biology or culture in isolation, but a terrain of contested biocultural meanings' (O'Gorman 2014, p. 285)

Environmental Humanities literature that focuses on the conservation of different species and ways of being in urban environments, has an emphasis on justice; on the importance of acknowledging the place-making of both humans and nonhumans (Plumwood 2008, van

Dooren and Rose 2012). Considerations of whether a species belongs are based not only on what that species can provide but what that species already provides to, and is provided by other beings, and landscapes. The contested, constructed dualisms that form the core of biocultural belonging in the city are exotic/native, human/nature, domestic/wild and fit/invasive. The perceived belonging of an individual in any given temporal and/or spatial locale is usually determined in terms of the category, species, and where it fits within these dualisms. Each of the categories of 'exotic', 'native', 'human', 'nature', 'domestic', 'wild', 'fit' and 'invasive' are given a place-specific value, and species are managed in relation to these values (Mulcock and Trigger 2008, Head 2012).

In Sydney city, belonging is being rethought to include both exotic and native species. Although the classification of native and exotic may have determined 'who' belonged traditionally, there is a wealth of work that looks to unsettle the notion of 'native' being the only type to belong in the Australian landscape (Davies *et al.* 2004, Trigger and Mulcock 2005, Recher 2010, Head 2012, Frawley and McCalman 2014, O'Gorman 2014, Gibbs *et al.* 2015). Some of this work goes further, and engages with agency beyond individual species, exploring the issues with collectively referencing the agency of a single species as a whole, instead of acknowledging the material diversity in groups (O'Gorman 2014, Gibbs *et al.* 2015). O'Gorman, shifts the focus from a 'species', to the 'organism', and asks, 'how might we ask about a particular organism in a particular place?' (2014, p. 285). Moving past the categories of species, and native, we are afforded the opportunity to become attentive to what is, instead of what theoretically should be. This could accommodate site-specific management of diverse groups and relations, in future attempts to limit degradation and promote biodiverse flourishing. In their deconstruction of the invasive status of camel species in Australia, Gibbs *et al.* look to understand the sources of both beneficial and harmful effects, not just of camels, but the bundle of 'objects, processes and relations' (2015, p. 59), of which camels are a part. Again, this moves away from the focus on a 'species' and looks instead at the diverse group that the camel is one part of, in order to understand the role of the group in changing the landscape, either positively or negatively.

2.5 Conclusion

The project of colonial modernity that has unfolded across the world over the past five centuries has ensured the popularity of the view that humans are hyperseparated from 'nature' (Plumwood 2009, Weir 2009). Anthropocentric forms of conservation developed from this hyperseparation have been held in high esteem for their role in contributing to the resilience of modern societies and the ecosystems they 'rely' on. With the rising acknowledgement of

the necessity to respond to human induced ecological and climatic changes, which are now commonly attributed to the processes that were utilised to carry out the vision of modernity, there is a shift in the types of stakeholders whom are acknowledged in research. In cosmopolitan cities, the constructed boundaries of human and 'natural' habitat are being challenged and shifted, to better represent human and nonhuman entanglements. This change is taking place through nonhuman-led flourishing, accomplished with successful adaptation to human built environments against human design (van Dooren and Rose 2012, McKiernan and Instone 2016), and through human-led design that incorporates nonhuman habitats (Geisler 2010, Francis and Lorimer 2011, Snep *et al.* 2011, Stokes and Chitrakar 2012, Blok 2013, Gaston *et al.* 2013).

2.5.1 Future research

Living walls have predominantly been examined in terms of the ecosystem services they can provide humans (Costanz*a et al.* 1998, Bennett *et al.* 2009, Francis and Lorimer 2011, Snep *et al.* 2011, Douglas 2012, Stokes and Chitrakar 2012, Gaston *et al.* 2013) or the role they can play in reconciliation ecology by providing habitats for nonhumans (Rosenzweig 2003, Geisler 2010, Francis and Lorimer 2011, Stokes and Chitrakar 2012, Kidwell 2016). Research that focuses on the embedding of nonhuman habitats in urban anthropogenic habitats, has found that there is opposition from human populations who don't want to be close to 'wildlife' and do not want changes in the overall aesthetic of their city (Stokes and Chitrakar 2012). A greater focus on conservation in the city in the environmental humanities could provide important insights that could potentially contribute to a more just integration of human/nonhuman habitat in cities.

3. Methods: A Bricolage Approach to More-than-Human Geography

The methodological approach for this study is a more-than-human geography of the chosen site, One Central Park, Sydney. A bricolage approach, comprised of semi-structured interviews, observation, participatory photography and review of grey literature, historical sources and ethology literature, has been used to develop a more-than-human geography of the site. To overcome the limitations of the spoken word in more-than-human research, the storied approach outlined by van Dooren and Rose (2012, 2016) was utilised. A reflective journal was also kept throughout the project with the purpose of considering the different challenges and possibilities when researching with, instead of on, nonhumans. This bricolage methodology was chosen because it could help me overcome some of the limitations provided by lack of access to the site, allowing an engagement with the different types of multispecies cohabitation that already existed at One Central Park. Furthermore, analysis of the more-than-human stories and experiences gathered in this research were utilised to draw out some of the challenges to, and possibilities for, multispecies cohabitation in cosmopolitan cities.

3.1 More-than-human geographies: a bricolage approach

> 'The bricolage views research methods actively rather than passively, meaning that we actively construct our research methods from the tools at hand rather than passively receiving the 'correct', universally applicable methodologies' (Kincheloe 2004, p. 2)

The aim of my research is to engage with the challenges to multispecies cohabitation in cities. Building on the research undertaken by Stokes and Chitrakar (2012) and Francis and Lorimer (2011), which explores the efficacy of embedding artificial habitat in architecture as an urban biodiversity conservation intervention, I chose to focus on the role that living walls could play in familiarising human populations with other nonhuman dwellers, fostering equitable multispecies cohabitation. In their study on embedding nonhuman habitats in Brisbane's CBD, Stokes and Chitrakar (2012) found that a dual approach of green infrastructure and envelope habitat (Figure 6 and Figure 7) was the preferred design type for embedding nonhuman habitats in cities, among their sample of Brisbane residents. They found that nature/culture dualism was present in the responses of their sample, and determined that, to be accepted, these types of reconciliation ecology interventions would need to be either conservative, or large scale, with 'demonstrable sustainable, cultural and environmental infrastructure benefits' (Stokes and Chitrakar 2012, p. 17).

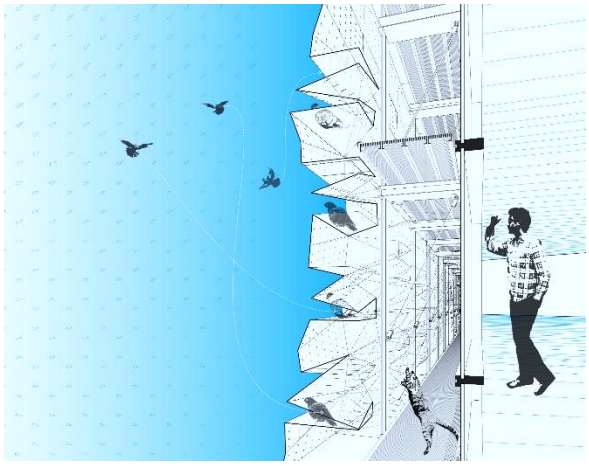

Figure 6: Envelope habitat (Lamphier 2012)

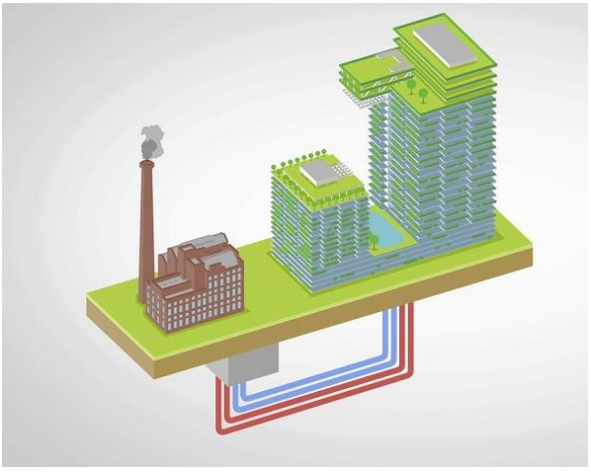

Figure 7: Green Infrastructure (Fraser Property Australia 2013a)

Figure 8: External vegetation at One Central Park is both envelope habitat and green infrastructure. 100% recycled water is used to water the vertical walls and planter box gardens. (Photo taken by Author)

Francis and Lorimer (2011) also promote similar interventions, but their rationale is quite different. They explore living walls and roofs as a bottom up and top down technique for improving urban biodiversity. They focus on the role of bottom up engagement with living walls and roofs in promoting citizen stewardship in urban biodiversity. As the living walls at One Central Park are not accessible to the residents to help maintain them (Figure 8), bottom up citizenry would need to take on other forms. For this project, I focused on more-than-human responses to, and shaping of, the living walls that have been implemented top down by developers and architects, and maintained by horticultural technicians.

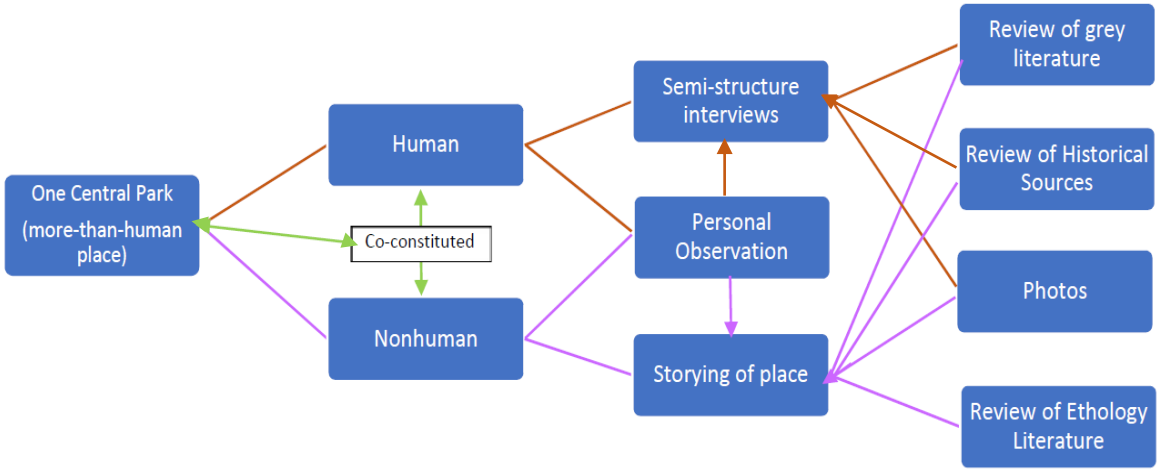

Figure 9: Bricolage approach outlined. In conjuncture, each of these methods will contribute to the more-than-human geography of One Central Park, Sydney

To effectively engage with the 'complexity of meaning-making processes and contradictions of the lived world' (Rogers 2012, p. 4), I utilised a bricolage approach to my methodology (see Figure 9 for overview of methods). Meaning, in order to collect rigorous, complex multispecies stories and experiences, multiple methodological practices and empirical materials and perspectives were combined (Kincheloe 2004, Rogers 2012). This was done by actively choosing methods that catered to the information available. One Central Park was engaged with as a more-than-human place that is co-constituted with, and co-constitutes, both human and nonhuman dwellers. The bricolage approach allowed me to engage with the meaning-making processes of both humans and nonhumans living at the site, to create place-specific insights that could be used as a resource for similar research in different locales, or types of cities. It also allowed me to respond to some of the particularities of the site and adapt my approach to cater for emergent research. This was important in my role as a researcher and research participant, and allowed me to properly engage with the dynamic nature of the site. As shown in Figure 9, as well as being their own methods, review of grey literature and historical sources, photos and personal observation informed the semi-structured interviews undertaken, while the same methods, as well as review of ethology literature informed nonhuman storying of place.

One Central Park is a private residence and access to most of the site is incredibly restricted. To overcome this limitation in my study, I utilised methods practiced by both multispecies ethnographers and more-than-human geographers. My interviewing style was personal and open in attempts to get participants to richly explain their interaction with nonhumans at One Central Park because they would be unobservable to me. I asked them how they felt about these interaction and what kind of strategies they used to make them work (see Appendix A).

Interviews were undertaken with nine human residents living at One Central Park and three staff from organisations that have played an integral role in designing, and maintaining the site[4]. I chose to undertake semi-structured interviews in an effort to allow the interviewee's personal experiences with the site, those that they deem meaningful, to be communicated to the interviewer. This kind of flexible representation of experience would not be possible with structured interviews. After initial contact with Fraser Property Australia, one of two developers who own the precinct, an email explaining my research and asking residents to participate, was sent out to residents on my behalf. Once I received responses from residents, I corresponded with them directly to organise a meeting place and time.

To supplement their stories and experiences expressed in interviews, I also asked the residents to provide me with some photographs that they had taken of the building (see Appendix B). Here, images were used as another medium to understand the human relationship with, and as part of, more-than-human worlds; as a tool to witness and make sense of multispecies encounters (Lorimer 2010). Unlike some participatory photography methodologies (Alam *et al.* 2017), I chose to use photos already taken by residents; that is, instead of providing them with direction and a specific time period for taking the photos, I used photos that they had already decided to take. This was done in the hope of receiving an un-curated window through which to view the participants' experience at the site; to see what they deemed as meaningful about their experience. In other participatory photography methods participants are provided direction in what they should show the researcher using their camera. The content of their photos is in some ways, predetermined. By asking for photos that had been taken alreay, I aimed to see what aspects of the buildings were noteworthy to the participant without any instruction; for example the clean interiors, the flowers, or the pool. This photographic method was chosen for two reasons. The first was to move away from methods that are based purely on human spoken language, and the second, to overcome some of the limitations of researching in a private, multi-storey/ied[5] residence by allowing me to see visual representations of multiple residents' apartments, in both buildings, at a range of different heights (see Appendix D).

[4] One participant worked on the building as a landscape architect and was a resident in the East tower

[5] One Central Park is a multi-storeyed structure in terms of the physical levels of the buildings and multi-storied in terms of the varying and multiple ways that dwellers at the site narrate their experience.

Pseudonym	Tower	Presenting Gender	Type of Apartment	Balcony or Loggia	Profession	From
Belinda	East	Female	Studio (Duel Key)	Loggia	Revenue growth manager	Western Australia
Ben	East & West	Male	One Bedroom (Duel Key)	Balcony	Bank account manager	New Hampshire / New York
Bryan	--	Male	--	--	Architect on design team of East Tower	N/A
Cara	West	Female	One Bedroom	Balcony	Learning and development	Eastern Suburbs, NSW
George	East	Male	Two Bedroom	Loggia	Finance consultant	Rural NSW
Isabel	East	Female	Studio (Duel Key)	Balcony	Mechanical engineer	China, further details N/A
Frederick	West	Male	Studio (Duel Key)	None	Lecturer (Accounting)	Liverpool, NSW
Max	East	Male	Studio (Duel Key)	Loggia	Climate Science (Meteorologist)	Barcelona, Spain
Reginald	East	Male	N/A	Balcony	Lecturer (IT)	N/A
Warren	East	Male	One Bedroom	Loggia	Landscape planning/design	Cronulla, NSW
Zach	--	Male	--	--	Horticultural technician / manager	N/A

Table 1: Human participants (N/A = Not Available)

Human and nonhuman (see Table 1 and Table 2) experiences at One Central Park were also explored temporally, through a review of grey literature and historical sources. This was done to gain a richer understanding of the site's relational, shifting, and dynamic more-than-human narrative over time; from dry fern valley, to swamp land, to nursery and farmland, to distillery and brewery, to green infrastructure precinct (see Chapter 4). This review also informed the way that interviews with human participants were carried out. The grey literature reviewed included reports such as the environmental management plan for the brewery site prior to its sale to Fraser Property Australia in 2004 and NSW Government heritage conservation reports. Historical sources used have been predominantly secondary sources, such as second-hand accounts of colonial invasion. These sources have been re-worked to provide a more-than-human, site-specific analysis. The currently available sources that focus on Indigenous engagement with Country, in the locale that is now Chippendale, are limited. This is a space in need of more academic engagement. In a longer study, an examination of historical primary sources related to both Sydney city and the specific site would be possible, which would add to and enrich the stories and experiences presented.

3.1.1 Nonhuman storying of place

> 'In the beginning was the story. Or rather: many stories, of many places, in many voices, pointing towards many ends' (Cronon 1992, p. 1347)

The storied approach outlined by van Dooren and Rose (2012) was used to overcome some of the limitations of the spoken human-word in this multispecies research. Through a review of ethology literature, observation and analysis of participant photographs I was able to engage with how multiple species might narrate One Central Park, or rather, how they might 'render their experience and perceptions… as successive and meaningful events' (van Dooren and Rose 2012, p. 3). The nonhuman animal experience can be rendered meaningful to humans through narrative, a term usually reserved for human beings (van Dooren and Rose 2012). This active narration of self is much more easily obtained through interviews and observation with human participants, but with the goal of living in ethical multispecies cities, the extension of interest and analysis of the nonhuman experience is an important practice.

In their article 'Storied-places in a multispecies city', Thom van Dooren and Deborah Bird Rose (2012) provide an example of the nonhuman storying of place of the little Penguin colony at Manly Beach in Sydney. van Dooren and Rose claim that penguin relationships with breeding places, like their cove in Manly, are the result of complex interactions between inherited and learned behaviours and ideas. They believe that penguins — like many other animals — are generators (and inheritors) of meaning (van Dooren and Rose 2012). Using the lens of storied places, I aimed to understand the different ways in which animals may have generated or inherited meaning. In the context of One Central Park, study of ethology literature and grey literature was used to map the historic and current movements of nonhuman animals known to dwell at the site. This provided me with a better appreciation of some species' patterns of movement and behaviour, which contributed to my understanding of the way nonhumans might narrate their experience with the site at One Central Park, in both the past and present. Ethology literature was gathered through use of search engines, such as Google Scholar, and from several ethology journals. Grey literature was also found through search engines and through council websites. The collection of this animal behaviour data was also aided by historical research of Chippendale, with a focus on colonial expansion in the region and the shift in Sydney's landscape resulting from environmental changes and urban development.

The final method in my bricolage project was observation and embodied experience. I stayed in an apartment in the West tower at One Central Park (Figure *10*) for two nights in June. In this time, I observed out the window, towards the gardens outside, and in the surrounds of the

apartment. I also set up a video camera framing the window for times where I was not in the apartment. My experience in these few days helped to inform my interview questions and my review of ethology literature. It also helped me understand the experience of dwelling in the West tower at One Central Park.

Birds	Noisy mina, spotted dove, peregrine falcon, rock dove (pigeon), Australian white ibis, rainbow lorikeet, welcome swallow, double-barred finch
Elements	Air, water, sunlight, wind
Gastropods	Snails
Insects	Bees, cockroaches, ants, midges, ladybeetles, lace wings, aphids, moths
Nonhuman mammals	Cats, dogs
Materials	Glass, stainless steel, polyethylene, concrete, soil
Reptiles	Blue-tongued lizard
Spiders	Orb spider, daddy longlegs
Technologies	Buses, cars, double glazing, loggias, lifts
Plants	Pink Cascade, Irish Rose, Pig face, Guinea Flower … There are around 350 different plant Species at One Central Park.
Trees	Eucalypts, casuarinas, ferns

Table 2: List of non-human subjects compiled from observations, photographs and interviews. Categorised using meta categories used by human participants

3.2 Reflective journal: researching with nonhumans

Through engaging with this multispecies methodology, I am contributing to a growing set of research in more-than-human geography and the broader environmental humanities that is putting the onus on harbouring research with nonhumans instead of purely on nonhumans (Bastian 2017, Bell *et al*. 2017). The category of nonhuman is being critically analysed and expanded to include much more than just organisms, such as elements, minerals, soils and buildings (Ogden *et al.* 2013, Kirksey 2017). Throughout my fieldwork and thesis writing, I kept a reflective journal, as an opportunity to engage with issues that did not fit into my scope due to the time and word limit constraints of the Master of Research (see Appendix B for journal excerpts). The journal looked at different forms of sensory multispecies communication (Kirksey and Helmreich 2010, Bastian 2017) that became apparent whilst doing field work and will provide the basis of further research. In the journal I reflected on how to 'interpret and translate the actions of another species while resisting anthropomorphic descriptions' (Moore and Kosut 2014, p. 516). I also worked on unpacking the systemic constraints on trying to research with nonhumans, such as trying to fit within the binarised human and animal ethics approval process.

Building on the work of Head *et al.* (2014) I also considered the possibilities of utilising the storied approach for plant species. Head *et al.* highlight that 'plant studies have been less explicitly part of more-than-human geographies than have animal studies' (2014, p. 861). One Central Park houses around 350 different plant species, both exotic and native, so this research provides a good opportunity to consider those classified under the heading of nonhuman who are usually absent from consideration.

Figure 10*: The East (left) and West (right) towers at One Central Park, Sydney (Fraser Property Australia and Sekisui House Australia n.d.)*

3.3 Data analysis

The data that was created from this bricolage research is a range of multispecies stories and experiences, which I have used to construct a more-than-human geography of One Central Park (see Chapters 4, 5 and 6). Participants' values and understandings were examined through analysis of the stories they told. This qualitative data was manually coded, looking for patterns or dissimilarities in the stories presented, in order to ascertain the efficacy of living walls in familiarising humans with sharing their spaces with nonhumans (see Chapter 6). The data is presented and integrated with theory, in Chapters 4, 5 and 6 in an attempt to

highlight One Central Park's 'relationality, its flux, and its movement' (Dittmer 2014, pp. 477–478) as well as to 'liberate hidden histories' (Dittmer 2014, p. 482). Experiences of One Central Park were also explored in relation to literature outlined in Chapter 2, through the themes of biocultural belonging, temporality and multispecies conflict.

3.4 Conclusion

This research aims to engage with the possibilities for, and challenges to, multispecies cohabitation in cities. I have chosen to use a bricolage approach consisting of semi-structured interviews, observation, participatory photography and review of grey literature, historical sources and ethology literature, to provide a more-than-human geography of One Central Park. This approach has been selected in order to rigorously engage with the complexity present at the site and to overcome some of the limitations of access that the vertical, private and external nature of the building presents. A reflective journal was kept alongside fieldwork and thesis writing, to engage with material that was excluded from the body of the thesis due to word limit and time constraints. I hope that this relatively localised and narrowly focused research will provide place-specific insights that can be used as a resource for similar research in different locales, or types of cities.

4. Storying Place I: A History of Dwelling in Blackwattle Swamp Creek Valley and Development in Chippendale, Sydney

What follows is a history of the locale that is now known as Chippendale in Sydney (Figure 11). In combination with Chapter 5 and Chapter 6, this chapter engages with the multiple temporalities of the site where One Central Park now stands, with the objective of understanding how it has been storied by nonhuman, along with human, subjects. This overview of somewhat hidden histories (Dittmer 2014) aims to be attentive to the experience of nonhuman dwellers of Chippendale over time, with the goal of decentring the human in consideration of the design, development and dwelling of cities.

Figure 11: Chippendale's location in Sydney City (Yellow), Blackwattle Bay (Blue) and the Sydney CBD (red)

4.1 Pre-invasion

Current day Chippendale is a small suburb that bridges the Sydney CBD to its outer, South-Western suburbs. Between 30,000 and 18,000 years ago, sea-levels around Sydney were as much as 130m lower than they currently are (Flannery 2000, Attenbrow 2010, Karskens 2011a). The valley that the Blackwattle Swamp Creek came to inhabit, was a treeless area, characterised by a range of ferns, herbs and wire rush (Karskens 2011a). In this time, the coral

fern was most dominant (Karskens 2011a), ‘with its tender feathery drooping branchlets…[and] graceful form’ (Hooker 1859 Plate XL).


Coral Fern (RBGSyd 2017)


Wire Rush (Photo taken by Author)


Tree Fern (Photo taken by Author)


Plum Bush


Plum Pine (Photo taken by Author)


Canthium


Cabbage Tree Palm (Photo taken by Author)


Cissus (RBGSyd 2017)


Eucalypt (RBGSyd 2017)


Native hops (RBGSyd 2017)


Casuarina


Bottlebrush (Photo taken by Author)

Figure 12: Example of plants found in the Blackwattle Swamp Creek Valley over time

Between 18,000 and 9,000 years ago, when sea levels rose relatively rapidly to around 10m below present sea-level, and the river valleys were drowned (Attenbrow 2010), Blackwattle Swamp Creek Valley was much closer to a temperate rainforest. Citing the work of palynologist Mike MacPhail, environmental historian Grace Karskens, described its canopy as being made up of ‘tree ferns, hazelwood, plume bush [and] plum pine… the creek was fringed by the tall, slender cabbage tree palms, canthium and cisssus… eucalypts had invaded the drier slopes above, and among the shrubs were native hops, a species particularly common after wildfires have swept through’ (Karskens 2011a, pp. 58–59).

Around 3,000 years ago, with drier conditions and Cadigal fire regimes, the rainforest subsided and the valley became dry open woodland with a grassy understorey. It was made up of casuarina, eucalypts, scribbly gum, banksias, bottlebrush, and paperbacks (Pearson *et al.* 2002, Karskens 2011b). The area, which was now similar to the landscape that invaders saw in the late 1700s, was covered in generous vegetation and rich alluvial soil. It was traversed by several creeks which ultimately found their way into what is now Blackwattle Bay (Fitzgerald 1990) (see Figure 11). Kangaroos, wallabies, possums, gliders, bandicoots, wombats, quolls, fruit bats, echidnas, native rats and mice, emus, ducks, tortoises, snakes, goannas, native cats, blue tongue lizards, parrots, parakeets, fish and shellfish, were found in this region pre-invasion (Pearson *et al.* 2002, Attenbrow 2010). Many of these were included in the diet of the Cadigal people at this time and were subjects in dreaming stories and kindship responsibilities.

The creeks that ran into Blackwattle Swamp Bay, brought different sediment into the landscape, altering the composition of the usually infertile soils provided by the Hawkesbury sandstone underneath. The Sydney region owes the diversity of its flora to the chemistry of the Hawkesbury sandstone. In its production of such poor-quality soils, the sandstone has ensured that the vegetation that lives in Sydney, has adapted to fill thousands of ecological opportunities across time and space (Flannery 2000).

4.2 Post invasion

Blackwattle Swamp Creek's vegetation was likely similar to the swampy headwaters of the Tank Stream (Pearson *et al.* 2002). Much like along the Tank Stream, during 1789, 'gangs of convicts were employed felling the trees and clearing the thickets of brushwood which impeded the straight line of road planned' to connect Sydney with Parramatta (Huntington 1899, p. 4). A log bridge was placed over Blackwattle Swamp Creek during this clearing. The drastic changes to the landscape made in preparation for industry and agriculture in the early nineteenth century, started the cascade of multispecies dispossession that shaped present day Chippendale.

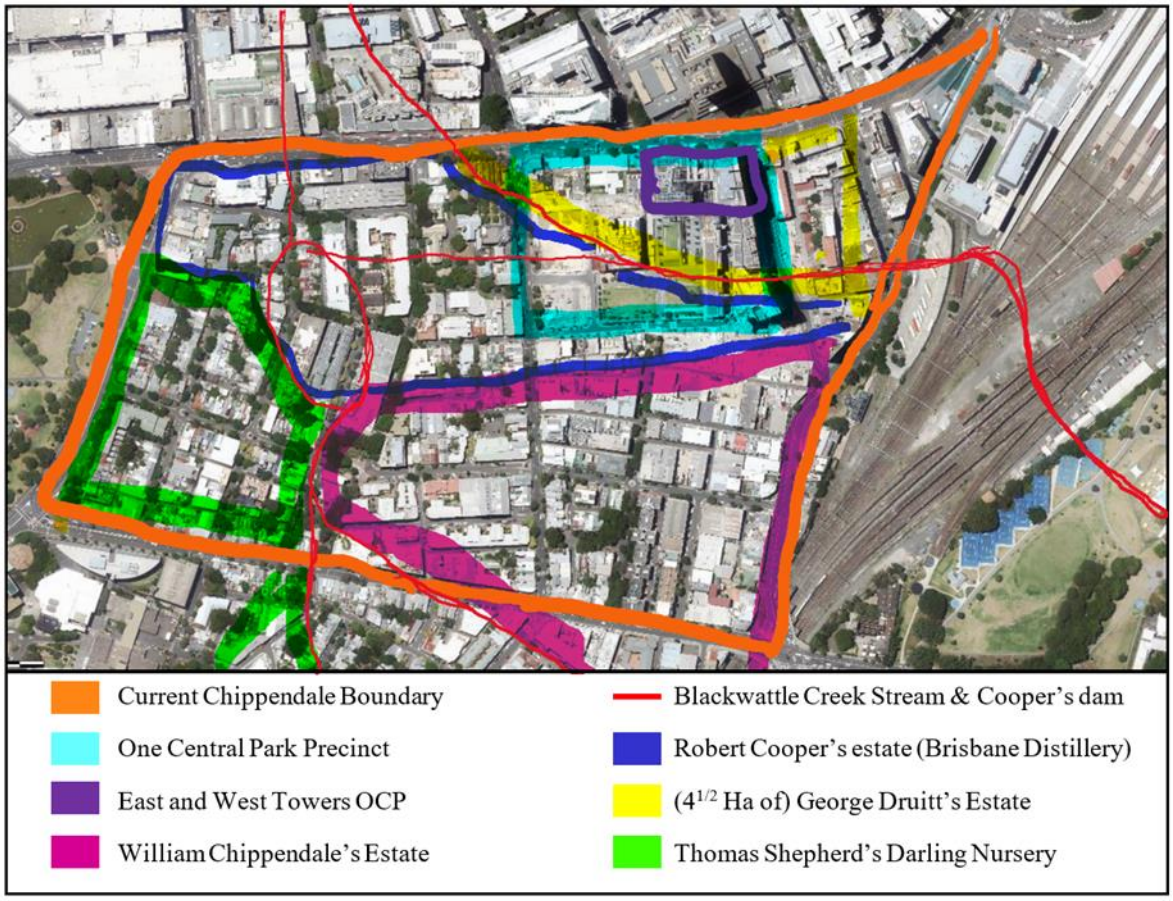

Figure 13: Chippendale landscape 1800s and present

4.2.1 Development and dwelling on Blackwattle Swamp Creek: 1817-1840

The land that the Blackwattle Swamp Creek inhabited was chosen by the industries that would later tarnish it, because it provided a constant, natural, source of water. William Chippendale, a free settler, was granted a 95 acre property in 1819, two years after he and his family had started living on the land (Figure 13). He farmed potatoes and barley and had grazing cows for the 5 years he lived there (Fitzgerald 1990). Between 1821 and 1835, George Druitt, an ex-military man, was granted 809 hectares of land, a small portion of which was part of what is now present-day Chippendale. In 1825, an ex-convict Robert Cooper was granted 17 acres of land, bordering Chippendale's and Druitt's land. He dammed the Blackwattle Swamp Creek for use in his Brisbane Gin Distillery. 'The most beautiful fruit' (Old Chum, 12 June 1910; 26 June 1910 cited in Fitzgerald 1990) grew on the banks of Cooper's dam, whilst eels and fish dwelled within, attracting fishermen (Fitzgerald 1990).

In 1834, John Tooth purchased four and a half acres of land from Major George Druitt because of its close proximity to Blackwattle Swamp Creek (Fitzgerald 1990). In 1835, he and Charles Newnham opened the Kent Brewery, which would later become the site of the One Central Park precinct (Hamilton and Andersen 2004). Also in 1835, Thomas Shepherd

was granted land, which bordered Grose Farm (now Victoria Park) (Figure 13), on which he established the Darling Nursery (Fitzgerald 1990). In this period of intense development, large numbers of the eucalypts, casuarinas, banksias and bottlebrush that once characterised the region, would have been removed and replaced by buildings, grazing fields, watercress fields (Fitzgerald 1990) and the exotic plants from Brazil, Panama, The United States, Lord Howe Island, Sicily, Java, Japan, New Zealand and New Caledonia, that were sold in Shepherd's Darling Nursery (AT&C 1872). While across the Parramatta road in Ultimo, Blackwattle Swamp Creek had attracted slaughter-houses and piggeries (Fitzgerald 1990).

Figure 14: Engraving – Sydney from the Parramatta Road (Carmichael 1829)

There are not many written historical accounts of Aboriginal dwelling in Chippendale and its surrounds in the 1800s. The discovery of the remains of a small Aboriginal campsite on land that once formed the upper flats of the Blackwattle Swamp Creek estuary in Ultimo provided evidence of 'occasional visits of Aboriginal people over time' (Dallas 2003 cited in Irish and Goward 2013). More artefacts found in a similar area, including a green bottle glass shaped into a tool by Aboriginal people, showed that the Blackwattle Swamp Creek area was still used by Aboriginal people after Europeans invaded and settled in Sydney (Jo McDonald Cultural Heritage Management Pty Ltd 2005 cited in Irish and Goward 2013). This coexistence is illustrated in Figure 14, which depicts a Cadigal camp near Parramatta Road before Chippendale. The cadi plants in the bottom left hand corner of the engraving allude to the fact that they were on Cadigal land. In late winter the Cadagaleans, a maritime people, would purposefully travel to the bush to strip the bark from Casuarina trees, in order to build canoes for fishing (Flannery 2000). They fashioned fishhooks out of mud oyster shells and used vocal cues to catch the fish that were a predominate part of their diet (Flannery 2000).

4.2.2 Industry's demise of Blackwattle Swamp Creek: 1840 – 1880

By the 1840s Cooper had built the Brisbane distillery, a wool washing establishment, a steam flour mill, a sugar refinery, his own cottage, 12 brick-built and slated houses, 22 stone built cottages on Newtown Road (now City Road) and 55 weatherboard cottages which adjoined the wall of the Kent Brewery, on his land (SMH 1850). While, Chippendale's land had been subdivided into 'sub-standard housing built along cramped laneways' (Fitzgerald 1990). The Brewery was in full operation and the only land it had not used for production was used for the grazing of the brewery's animals, such as horses (Fitzgerald 1990).

In 1852, Cooper's land, and everything on it, was sold to the Australasian Sugar Company (now Colonial Sugar Refinery Company, CSR), which, along with the exponentially rising human population in Chippendale, significantly altered Blackwattle Swamp Creek and the surrounding land. Around the same time, in 1853, there was a fire at the Kent Brewery. As the brewery relied on water from the Blackwattle Swamp Creek, which provided a 'miserable supply' (SMH 1853), the fire ruined the buildings and machinery behind the brewery walls, causing it to be re-built over the next few years (Hamilton and Andersen 2004).

Between 1852 and 1878, CSR, with no need for good quality water for their condensing purposes, allowed refuse and sewerage from the occupants of the ever growing Chippendale, into the dammed Blackwattle Swamp Creek (Fitzgerald 1990). By 1875, with Chippendale now an unplanned, highly developed suburb, it was strongly suggested by the Sydney City and Suburban Sewerage Health Board that the Blackwattle Swamp Creek be redirected into the Abercrombie Street sewer (SCSSHB 1875 cited in Fitzgerald 1990). CSR moved to Pyrmont and what was once Robert Cooper's land, got re-developed into the Blackfriars Estate. In 1912, the Tooth's Irving Street Brewery was constructed next to the already expanded Kent Brewery, making it the size of the present-day One Central Park precinct (Hamilton and Andersen 2004).

4.2.3 2005 to present: 'healing' through design

The Tooth's Irving Street Brewery, sold to Carlton and United Breweries in 1983, closed its doors for good in 2005, after 150 years of constant production (Hamilton and Andersen 2004). The site where it stood was hidden behind high walls for many years and when Fraser Property Australia took ownership of the land, they undertook the development of their new green infrastructure precinct with the goal of 'healing' a rift between industry and other residents in the area (Bryan, architect). Property developers, Fraser Property Australia, bought the old Carlton and United Breweries site in 2007. Most of the brewery buildings, except for those deemed to have conservation heritage status (Godden Mackay Logan 2006), were

cleared between 2008 and 2009. A masterplan for the precinct, which was worked on by a range of architects, including Tzannes Associates, Foster + Partners, Johnson Pilton Walker, Turf Designs and AAA Design, from 2007, was approved in February 2009. The East and West towers of One Central Park were the first to be built, between December 2010 and December 2012. In this period, Fraser Property Australia entered into a joint venture with residential property builders and developers, Sekisui House. The construction of the East and West towers began with the blackwater treatment plant in the deepest basement level, then the car park, followed by the retail podium and the West tower, it was then finished with construction of the East tower (Watpac Construction Pty Ltd 2015). Residents first moved into the two buildings in June 2013 and in October 2013, the Central Park Mall was opened.

Figure 15: The East tower at OCP and the UTS tower seen as a gateway to Sydney city (Fraser Property Australia and Sekisui House Australia n.d.)

Following what they called ‘150 years of exclusion’(Fraser Property Australia 2013b), the designers of the One Central Park precinct wanted to evoke a sense of ownership to the general public of Chippendale. They wanted to open up a place that in post-contact Australian history had been barricaded up and, with the creation of a large park covering one third of the 5.8-hectare site, provide a place that was publicly accessible and enjoyable for humans and nonhumans. Along with providing a public space, the architects wanted to foster the experience of ‘travelling through to the central business district’. Bryan, an architect that played a key role in the design of the East tower, claims that these two buildings could be seen as a gateway into the city (Figure 15). The East tower sits in soft opposition to the brutalist UTS tower that has dominated the Sydney skyline for several decades. With each

building representing architectural styles of different periods, we are reminded that cities are built over time and that they are historical artefacts in this sense (Quiring 2010).

Materials used in building the structures of the East and West Towers at One Central Park include concrete, metal reinforcement bars and mesh, stainless steel wire cables, stainless steel springs for cable tension, glass and polyethylene for the planter boxes and the felt walls that make up Patrick Blanc's vertical gardens (Watpac Construction Pty Ltd 2015). There are six basement levels beneath the precinct, which hold a water treatment plant, thermal energy plant and car park. The plentiful interconnections that exist from the lowest basement to the highest point of the East and West towers form a buzzing, malleable, sticky, loud, entangled, multispecies experience; an experience that is lived and shared in multiplicity.

4.3 Conclusion

In the history of the Blackwattle Swamp Creek Valley, the land was cleared and the creek was polluted and diverted to a drain. The landscape was developed to such an extent that the multispecies demographic of the area pre-invasion and in the first 40 years post-invasion, seems impossible for current dwellers to imagine. The erection of the East and West towers at One Central Park provide an opportunity to reflect on the role of living walls and green infrastructure as a type of more-than-conservation. As a structure teeming with more multispecies life and more-than-human relations than the human designers could have imagined, it potentially provides a place for those whose ancestors once lived in the Blackwattle Swamp Creek Valley, to return, or for those who have no ancestral connection, to start anew.

5. Storying Place II: Making Worlds at One Central Park

> ‘Making worlds is not limited to humans, we know that beavers reshape streams as they make dams, canals, and lodges; in fact, all organisms make ecological living places, altering earth, air and water’ (Tsing 2017, p. 22)

5.1 Life and death, up high

When the plants in the vertical gardens at One Central Park were young and small (Figure 22), they needed to be continually dosed with nutrient-rich water by the irrigation system. The water would filter down across the surface of the exposed grey, polyethylene felt lining, to where the plants had taken root, and help them grow. Once the foliage had grown to cover the felt, it gave an unruly appearance. ‘It’s a bit of a scrambler. There’s a lot of climbers, a lot of hangers… They’re not manicured hedges’ (Warren, resident). After four years of plants and humans cohabitating at One Central Park the plants have made themselves known to the human residents (Figure 20 and Figure 26). Some with ‘the most brilliant pink flowers’ (Ben, resident), some providing a ‘vale of humidity’ and fragrance (Warren, resident), some that ‘flap inside to say hello’ (Frederick, resident) and some that are ‘just green’ (Max, resident).

Wind, birds, insects, plants, water and horticultural technicians control the transportation and uptake of new seeds in the vertical gardens and planter boxes at One Central Park. In the earlier years of the plants’ lives, when plenty of space between them in the polyethylene felt could still be seen (Figure 22), grass seeds blown into the nutrient rich felt by the wind would take root and attempt to flourish. ‘Broadleaf weeds’ and even some ‘trees’ were also transported with the ‘help of birds and insects’ (Zach, horticultural technician). They too would drop into the felt, taking root, ready to flourish. Now that the foliage of the vegetal residents at One Central Park, has grown, this process is much more difficult. The vegetal residents bend off the edges of their felt base, crawl across each other, engulf their wire cable supports and sprawl across windows. This thick and widespread cover, catches passing seeds that try to make home in the felt. It tussles them out, knocking them to the planter boxes or street below.

The casuarinas, eucalypts and ferns that once inhabited the Blackwattle Swamp Creek Valley still come and try to live at One Central Park. When they make it to the felt with help from a bird, the sun shines, the recycled water bathes them, and they start to sprout. However, their stay is cut short by the gloved hands of the human horticultural technicians, who pluck them from the felt. The competition that the tree sprouts provide, ‘to the other plants’, ‘to the

waterproofing' and the overall 'structure of the building' (Zach, horticultural technician), ensures that in the eyes of the humans maintaining the gardens, casuarinas no longer belong. 200 years ago, casuarinas and eucalypts dominated the landscape where One Central Park now stands. Casuarinas were used to make Cadigalean canoes, and provided nonhuman habitat (Chapter 4). In this sense, they bioculturally 'belonged' in that temporality. Present-day at One Central Park casuarina seedlings are a native/invasive contradiction. The colonisation of Sydney and the subsequent construction and continued development of Sydney city has now ensured that casuarinas belong in the locale in terms of their 'nativeness', but also do not belong as they conflict with human imperatives, in terms of design and dwelling and to the survival of other plants cultivated by people, whose presence is valued. Even if the plants that the casuarina seedlings threaten are classified as exotic by the horticulturalists, the casuarinas still must be removed.

Many of the human residents at One Central Park seemed to acknowledge that plants belonged on the building, purely because the technicians had put them there. For some, the plants that are left alone to flourish are innocent friends that call them to respond: 'I have never been a fan of sitting somewhere and looking out, because when I do, I start thinking. I just can't enjoy the view by itself. But now, I've changed just because of the plants that I've got up there… I know that I don't have to water them, but I do sometimes. I know I'm not supposed to because they don't need my attention' (Reginald, resident). In death, these friends further cement their identity to humans. 'I've even given them names [after they died] …Harris, George, Fat Tom… you know just names' (Reginald, resident). It is the very condition of death, that provides enough difference from the others, providing the human dweller inside the building a feeling of empathy and closeness.

Being greeted by death outside the window does not always bring feelings of gratitude and compassion. During my short but enlightening stay at One Central Park, where I had hoped to view the vegetal residents up close and in their full glory, I was disappointed to be faced with what seemed to be sparse and dying vegetation. Whilst looking out through the windows of the loggia, I saw drips of water constantly falling onto the desolate garden outside. Gravity was pulling the water that seeped through the underside of the planter box above, into lines, until it could stay no longer and fell, with a continual drip, drip, drip onto the seemingly dead, pruned plants below. One of the two vines that traversed the window vertically, clung to its wire, looking like brittle bones. Its orange and brown leaves sagged and swayed in the wind. Some flowerless pig face succulents were scattered on the floor of the garden; as many alive, as were dead. Broken twigs and discarded leaves were also scattered over the floor, and bright

green shoots of grass poked through the materials that had been used as a substitute for soil (Figure 16). Experiencing this scene, I initially felt cheated and sad. When you approach the East and West towers from Central Station, you are greeted with walls overflowing with lively, green vegetation and this flourishing image somewhat sets the tone of what you expect the experience of the building to be. As you get closer to the buildings and pay attention to the dynamism present, in design of both the apartments and the gardens, the diversity of dwelling and experience at One Central Park comes into sharper focus.

Figure 16: Planter boxes outside a West facing apartment on the West tower (Photo taken by Author)

Much like myself, most of the other residents felt that the death of their vegetal companions outside would cause feelings of sadness and dismay. Although, upon reflection by most participants, it was agreed that they must take death as a certainty of life. To cohabitate with nonhuman others and not come to terms with their liveliness, sickness and death, would be unrealistic. After speaking with Zach, one of the horticultural technicians who helps maintain the buildings, I was told that what I thought were dead plants, were more likely, heavily pruned plants. They were not dead, but instead, ready to spring to life. Zach explained that their engagements with the plants were dependant on the weather conditions that are presented each day. If winds were too intense or there was electrical activity, dangling human bodies from the top of each building would not be possible. This relationship between the technicians and the elements, affects the size and health of the plants. The plants are 'living in relatively hostile conditions… not their natural environment. They're exposed to extra wind loads, they're growing in a smaller space… [and] sharing that space among other plants'

(Zach, horticultural technician). All these factors combined, ensure that to enable the long-term health of the vegetation, sometimes, the plants must be cut right back to stubs (see Figure 16).

5.2 Human dwellers at One Central Park

The reason for moving to the East or West tower at One Central Park was different for each of the human participants I interviewed. Most of these residents wanted to move to be close to the city, either to be near work, or to 'live somewhere more fast paced' (Isabel, resident), to imbue the city lifestyle. Some moved into the building purely because it was brand new. They felt that the living walls were either an added bonus or nothing but a 'cute' feature (Belinda, resident; Isabel, resident) of their new home. For one participant, being able to accommodate a very expensive and large couch was the overriding factor that influenced his choice to live at One Central Park. Therefore, at least among the people I interviewed, the vertical gardens and planter boxes were not considered a primary reason for choosing to live at One Central Park, but over time, most of the residents interviewed had engaged in complex relationships with the plants, insects, birds, lifts, dogs, cats, glass, wind and sunlight that exist within, and outside their apartments. The different orientation and height of each apartment, the types of plants that live in the gardens outside, the internal configurations of the apartments and the types of balcony, have helped to shape these relations (see Table 1 for overview of participant apartment and balcony types). The few participants that lived in studio apartments on the East tower, facing West, either had no vegetation outside their enclosed balconies, or had a very a small amount. Their interactions with nonhumans were mainly with small insects. The photos that they sent me (see Appendix C) showed that to them, the nice, new interiors, the view across Sydney, over the pool and of the West tower, were what made the building for them. Frederick, who had a North facing studio in the West tower had a very different experience (see Figure 18). His windows were covered with thick vegetation, so much so, that he could barely see the Anzac Bridge that lay beyond them. He recounted seeing many more birds and insects and also mentioned physical interactions with the plants through his windows. For those who had open balconies, their interactions with the wind, plants and insects was again very different to those with other apartment configurations. Ben cited that he and his partner put out bird seed and rice milk in attempts to form relationships with the birds. He also mentioned using a cockroach spray outside, in attempts to prevent cockroaches from coming inside. Cara mentioned seeing miner birds nesting from her balcony as well as little trails from snails that where illuminated by condensation.

Configuration also played a role in human-human relationships. For example, one resident stated: ‘This building doesn’t give you an opportunity to talk to people much. The only time I see people is in the lift’ (Reginald, resident). The lifts in the East and West towers of One Central Park were often described as a rare place to meet other residents, although usually without much chance of conversation. People ‘look at their phones’ (Max, resident) and when greeted with a hello, would either ignore it, or smile politely. In design, the towers ‘prioritise the experiential quality to be the [resident’s] apartment’ (Bryan, architect), instead of the communal areas of the building. This type of design, coupled with the transient nature of the building’s human residents, has left them feeling cut off from their fellow human dwellers.

Those who dwell in the apartments that face inwards over the pool, are afforded the rare opportunity of interacting with their neighbours in a more open and direct manner (Figure 19). Ben explained this kind of human-human relation: ‘One neighbour had a baby and we got to see it grow for two years... You’d see it out on the balcony with its toys, then the toys changed, then it learned to walk’. Although the design of apartments does allow for complete privacy, the use of the public areas and balconies that face each (see Figure 17) other perhaps provides a greater feeling of community, by providing opportunities for physical witnessing of other human dwellers.

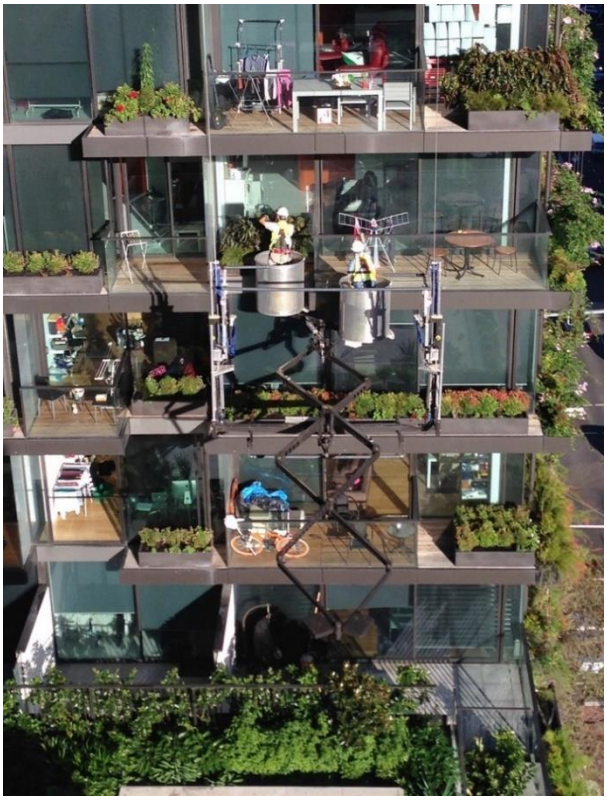

Figure 17: Participant photo: From Ben’s balcony

Figure 18: Participant photo: View through Frederick’s window

5.3 Belinda's story: conflict with midges

Today, like every other day, the 'little, minny, black, fliey things' that Belinda shares her apartment with are buzzing around her head, following her as she moves through her studio. Today is different though because she has devised a strategy for keeping them out. Grabbing the heavy double-glazed door, staring out at the West tower, Belinda pulls to close it, leaving it only a few milometers ajar. The fine bristles protruding from the edge of the door provide cover from the world outside, most importantly, from the little midges who have been enjoying the comforts of her home for 'about three years' (Belinda, resident). As the sun starts to set, she pulls her blinds 'the whole way down' to the floor before she turns her inside lights on. 'If I expose any light the bugs will come to my window' (Belinda, resident). Belinda feels that 'humans have the indoors, we built the indoors… then there's the wild… we don't live in trees…in tree houses. We're not cavemen'. For her, this battle with the midges, was about keeping her privately owned, human space purely human. Midges, belong outside around the plants, not inside with her. When they cross this boundary, it's 'annoying' (Belinda, resident).

The midges at One Central Park only want to swarm in a love dance and find a mate. The air currents created between the two buildings, catapult them up from level to level until the attraction of the bright light from an uncovered, open window is too much for them, and they move through open spaces towards the light. At first, as they dance around the new space, they are shooed away by large hands. They are split from their friends, pushed in all directions, forced to dodge objects in the room. Eventually they make it back to one another, whilst simultaneously being attracted to other lifeforms in the room. They chase each other, trying to find a mate, then, with an abrupt 'pshhhhhhh', and they all drop to the floor; their five-day life cycle is cut short by a very frustrated human.

5.4 Dogs fostering community

Dogs play an integral role in the socialising habits of most of the participants interviewed; they co-become with human and nonhuman residents (Haraway 2003, 2008). Dogs, not only provide and receive companionship from their owners, they are also a friendly presence for humans in a usually hostile lift, they are playmates for other dogs dwelling at One Central Park or in the local area, their waste sullies the pristine carpets inside the East and West towers and their barks, and whimpers, alert others to their loneliness. For Reginald (resident), 'They are a way to talk and feel more comfortable in the lifts… especially if you have problems making eye contact with strangers… I always start having fun with [the dog] and ignore the owner'. There is a 9 or 10kg limit for pets at One Central Park, 'but no one pays

any attention to that' (George, resident); 'I see cats and dogs that look much fatter' (Reginald, resident).

The large number of dogs, of all different shapes and sizes, living at One Central Park come together to have parties organised by human residents. The dogs sniff each other out in the lifts, hallways, lobbies and park and while they meet old and new friends, this allows their human companions to meet and talk with each other too. It is from these chance meetings, usually initiated by the dog, that meetings in the park are organised by human residents. While the dogs leap and bound around the park, sniff each other and mingle with other humans sitting in the park, their owners discuss the different ways they care for their dogs and their busy days. Isabel spoke of the importance of this kind of community. She noted the surrogate role that her furry life-mate played in forcing her to move past the constraints of a lonely, fast-paced city life. The dogs that dwell in apartments at One Central Park, provide opportunities for the human residents of the East and West towers to mingle with external human and canine members of the Chippendale community.

My overriding impression is that dogs are the favoured nonhuman dweller/companion species of the humans living at One Central Park. Speaking to human residents, it became apparent that this favouritism for dogs, was based around their perceived ability to control the movements of these animals, an ability they felt they lacked with the other nonhumans that dwell at One Central Park. Some also cited the fact that the relationship was 'intentional' on their behalf, and so, was desirable. Isabel told me: 'I'm happy to share my space with my Chihuahua because I intentionally want him there…I feel really uncomfortable with ants and insects, I don't want to share my space with them. Nor with birds, because you can't control them…my chihuahua, he's inside and you can control [him], but birds, they fly around and I'm very scared of them'. Another reason dogs are favoured, is their friendly and playful nature. For the most part, the humans felt that they could bend down, stare a dog in the eyes, and pat their soft fur, without any judgement, or discomfort. Participants alluded to the fact that this kind of close interaction, which they can experience with dogs, is all but impossible with other kinds of human or nonhuman strangers. This comfort with dogs is also reliant on the long history of human-dog relations. These relationships span at least fourteen thousand years (Fagan 2016) and have taken the form of hunting companion, draft animal, sheep herder, life-mate companion and prized possession (Haraway 2003, 2008, Fagan 2016).

On the rarer side, some did not feel this comfort and instead considered getting into a lift with dogs 'pouncing on you' (Belinda, resident), was not enjoyable. Belinda said she 'likes looking at them, but I don't like them jumping on me, making a mess'. This concept of controlling

mess seemed to be an important one for the human residents cohabitating with dogs at One Central Park. ‘Sometimes they have accidents in common areas and it’s not fun at all. Every morning when I leave for work, a dog has cocked its leg up against a wall somewhere’ (George, resident). ‘Sometimes they pee on the carpet and we have to wait for maintenance to clean it up’ (Belinda, resident). Although waste made up a large part of this conception of mess with dogs, destruction of property, via ‘nesting’ (Ben, resident) or ‘flapping around’ (Frederick, resident) was also present in the opinions of human residents when speaking of other nonhumans, especially birds and cockroaches.

5.5 Cats permeating boundaries

Although dogs have made the public park, the lifts and the lobbies their domain, cats seem to have monopolised the intricate network of balconies and planter boxes that cover the buildings’ exterior. George, one of the residents living in the East tower, told me, ‘I’m conscious of the fact that I can’t leave the doors open, because [my cat] can see the plants. We’ve got birds that come and sit on the planter box and kind of taunt him… He might jump over [if the door is open]’. For some residents, cat bodies narrate One Central Park. They sit, staring longingly through the glass at a spider in its web, their tail moving calculatingly in time with each abrupt movement of the web in the wind (see Figure 25); they shoot to the other room to hide under the bed after hearing a knock on the front door; they move from inside to outside, tiptoeing across the gardens at unbelievable heights, out of sight of their human dwelling mates. Feline interactions with these buildings are not bounded by human intention. They wilfully ignore the distinction of domesticated inside and wild outdoors, and move gracefully across the building as if it were a singular entity.

For most humans, cats are now seen to belong in, and around, the human home; they are perceived as domestic, or no longer ‘wild’. From a biodiversity perspective, the kind of cats that people have as pets are ‘invasive’ and do not belong in Australia, yet it could be argued that they bioculturally belong in the city. They form part of human kinship groups, they have relationships with neighbouring animals and plants, and with landscapes. At One Central Park they have an intricate relationship with the plants and birds outside.

5.6 Cycles of water

Water ensures a circulating connection of those that dwell at One Central Park, through the blackwater treatment plant. The treated water is used to clean windows, water gardens, wash clothes and flush toilets. There are 1200m^2 of living walls and 5km of planters on the East and West towers to be watered. ‘Initially we were using 140,000L of water per day [on the

vertical gardens and planter boxes] and that's now getting down to about 60,000L of water per day because those plants are a lot more established and we don't need to get them thriving as much' (Bryan, architect). One Central Park collects rainwater from roofs, storm water from impermeable surfaces and planter box drainage, groundwater from basement drainage systems, sewage from an adjacent public sewer, sewage from all buildings within the One Central Park community, backwash from pools and spas in the development, and irrigation water from all living walls (Watpac Construction Pty Ltd 2015) to create one million litres of water every day in the blackwater treatment plant (Bryan, architect). The blackwater treatment plant, and the pipes that carry water from it across the precinct, transport water in the same locale that Blackwattle Swamp Creek once did. This water is pulled to the top of the buildings in the irrigation system, run through nutrient dosing, and trickled down over the vertical gardens, once every few hours. It is also transferred to each individual apartment and used in the laundries and toilets.

If you are lying by the pool, below the plants while they are being automatically watered, 'you can feel huge drops' (Max, resident) fall on you. Or if you are in your apartment looking outside, you might see streaks of water tumbling down your window (Ben, resident). For most people, the use of recycled water is seen as one of the biggest benefits at One Central Park. For others, it is seen as the worst. For Belinda, 'the smell, the taste. You can't drink the water. I buy [it]'. The water ensures the flourishing of the range of plants that live on the external walls of the East and West towers, these plants attract insects, and birds, who in turn attract larger birds like peregrine falcons. For a time, a pair of peregrine falcons were nesting in the stacks of the heritage listed brewery site. One falcon would circle the tallest building, looking for pigeons and rats. George would see it doing laps of the East tower. When it would pass his window repeatedly he could distinguish it from its 'very narrow, flat head'.

5.7 The ecosystem traversing the glass

The complex, ecological relationships that the human horticultural technicians and human residents are part of at One Central Park are plentiful. Most of the dwellers at the East and West towers live outside of the human made apartments, which is exactly where the horticultural technicians work daily. Spiders string webs of all sizes and patterns in the gardens (Figure 21 and Figure 23). They make them as strong as possible, because they must endure intense winds (Wu *et al.* 2013). These predatory insects, climb from their webs, onto the leaves of the vegetation below. Here, along with lace wings and lady beetles, they eat the aphids, which are in turn sucking away at the sap of the plants. The horticultural technicians do not spray for aphids intentionally because they do not want to remove the food source of

these insects (Zach, horticultural technician). If the aphids were not prey, they would make prey of the lush vegetation covering the buildings. These plants grow, scramble, climb and hang from their polyethylene planter boxes and felt. Those that produce brightly coloured flowers are visited by birds, butterflies and moths, who feed on their nectar (Ben, resident; Warren, resident). The plants with a nice compact, bushy form are also visited by birds and together they build nests and provide protection for bird eggs (Figure 24).

In the gardens on the pedestrian level below the East and West towers, a blue-tongued lizard (*Tiliqua scincoides scincoides*) hides in the vegetation, longing to sit in the sun (Koenig *et al.* 2001). It eats the ants and insects in the undergrowth. A noisy miner (*Manorina melanocephala*) swoops above the lizard and starts ascending to a wire above. It lands on the vines covering the stainless-steel wire that reaches up through the planter boxes, parallel to the glass, and eats spiders, ladybeetles and moths. Welcome swallows flit around the buildings and plants, catching their insect prey in flight. Ants milk the aphids, collecting the sap harvested by the aphids, before taking it back to their nest for their queen's kin. They also selectively stream into the apartments searching for alternative sources of food that are easier and quicker to harvest (Frederick, resident). They manoeuvre around human bodies, finding interesting and delicious things and signal other ants to join them. Humans sitting inside stare out through the glass, through the plants, at the city beyond. They do their work sitting next to their agitated cat who is being taunted by the noisy miners outside (George, resident). A lone cockroach climbing quickly sees her opportunity to drop inside before the window is closed. Once in, she quickly scuttles into the corner, away from the distracted cat.

5.8 Cockroach: enemy number one

Residents identified living with 'big' Australian cockroaches (*Periplaneta australasiae*) and 'small' German cockroaches (*Blattella germanica*) at One Central Park. Human residents chose to live in these buildings because they were new and clean. The cockroaches, who came with people's possessions when they moved in, or came with the plants, did not know that the humans would want to live without them. For them, places where humans live provide the perfectly sized, dark cracks and crevices for them to rest in during the day (Lihoreau *et al.* 2012). These places are not inhabited by any cockroach predators and easy sources of food are to be found during cockroach expeditions in the night (Lihoreau *et al.* 2012). The cockroaches dwelling at One Central Park have been sprayed with insecticide and stamped on by many human residents.

George stated, 'I don't really have that big of an issue with bugs and small insects. Cockroaches though, I do have an issue with. They're more of a pest in my mind… so as long

as the cockroaches stay out, I'm fine'. For residents, cockroaches evoke feelings of invasion, battle and conquering: 'I was invaded by my first cockroach a few months ago!' (Warren, resident) 'If cockroaches are coming at you in force, what are you going to do?' (Belinda, resident). With the exception of two participants, who were 'surprised to hear that there are cockroaches here' (Reginald, resident), everyone drew their line at sharing space with cockroaches. Ben felt that 'the fact that cockroaches might nest in your furniture…and look so resilient' was the deciding factor for him. Belinda, who tries to differentiate between bugs, felt that, 'if they have a personality, or I feel like they're big enough, that they can live and go off on their own' then she sees them as not quite belonging but as somehow independent with a more valuable life; 'but small, really annoying, really gross cockroaches' she would have to kill. She went on to claim that she 'understands that people find companionship with animals... Maybe [she'd] get used to cockroaches, but [she] hasn't been around them enough'.

Whether they came through an open window in a storm, or just seemingly appeared from nowhere, many residents felt cockroaches must go. The human experience with cockroaches at One Central Park is captivating and generalised. Cockroaches are spoken about with animosity, but never in great detail. They are built up as one all empowering entity that must be stopped as soon as possible, even if there are two competing species living there at the same time. The entity of cockroach, was described as a scuttling, invasive, gross, dirty, pest and/or vermin, that if possible a complete overtaking should be pre-empted with eradication strategies. No one specified how the cockroach got in, where it was in their apartment or what it was doing. They instead acknowledged that the cockroach was 'inside' and that just would not do.

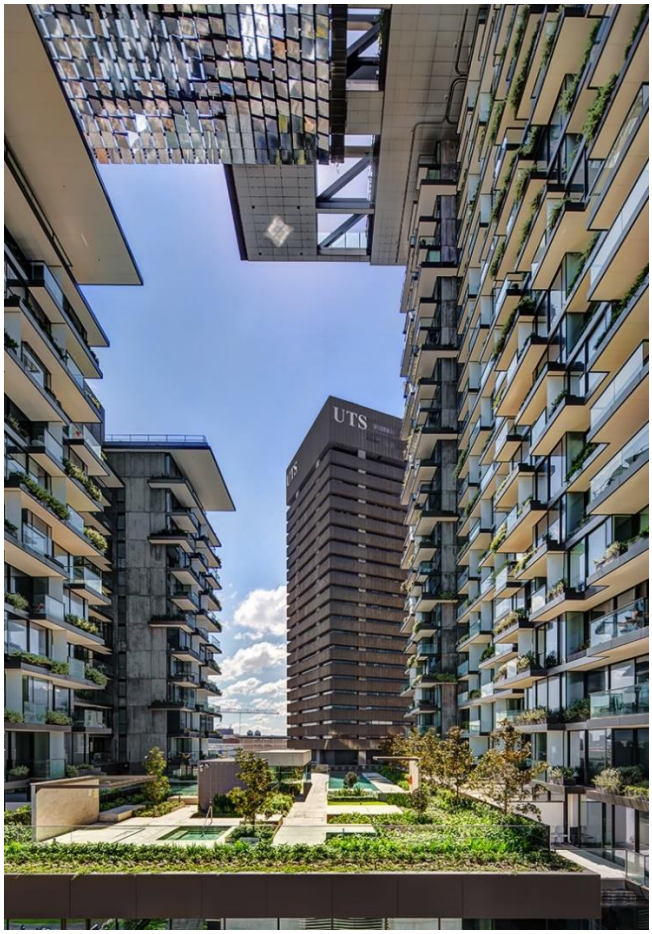

Figure 19: Balconies facing East and West at One Central Park (Greencliff 2017)

Figure 20: Plants meeting at One Central Park (Junglefy 2017)

Figure 21: Web of a small spider with pig face, vines and stainless-steel wire (photo taken by Author)

Figure 22: A new vertical garden in 2012 (Fraser Property Australia 2013a)

Figure 23: The web of a spider dwelling on the East tower at One Central Park (@turfdesignstudio 2017)

Figure 24: Bird nest in the gardens at OCP (Junglefy 2016)

Figure 25: George's cat (Participant Photo)

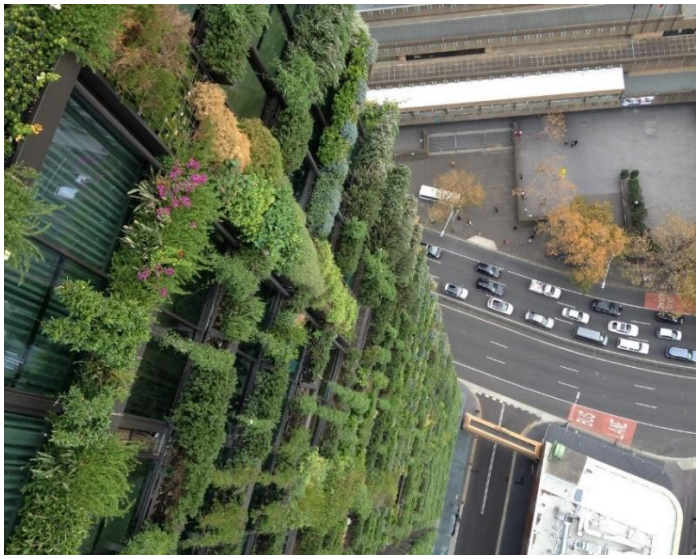

Figure 26: The gardens from above (Junglefy 2017)

6. Storying Place III: Living Walls and Multispecies Cities

Although the ideas of 'common worlding' (Latour 2005), 'becoming-world' (Houston *et al.* 2017), 'co-becoming' (Haraway 2008), 'co-constituting' (McKiernan and Instone 2016), 'co-opting' (Ingold 2000), 'co-fabricating' (Whatmore 2006) and 'co-emerging' (Green and Ginn 2014) are not the same, in their own way, they all acknowledge groupings of relations that are not bounded by purely human social and cultural norms, but instead are created, experienced and re-created differently for, in conversation with, each individual involved. The East and West towers at One Central Park are an example of these kinds of relationships. They continue to be co-constituted by humans, and abiotic and biotic nonhumans. This chapter firstly examines the physical and discursive responses of human participants to living with nonhuman others. It illustrates synergies in human participants' responses to multispecies cohabitation and outlines several factors that were seen to collectively affect the willingness of human residents to share space. This analysis is then used to consider what an ethic of conviviality might look like in an equitable multispecies city. The relationship between fostering attentiveness and allowing ourselves as humans to be vulnerable is explored, as well as the diverse opportunities that living walls provide for native and invasive nonhuman belonging in the city. This is followed by an engagement with how living walls, as a type of green infrastructure, can help to familiarise urban human populations with multispecies cohabitation and how they might contribute to an ethic of conviviality in cities. This chapter concludes with a reflection on the challenges of carrying out more-than-human research in cities. In particular it considers the role of using categorising terms in removing individuality in more-than-human experiences and the effect of vertical, external and private on the researcher's ability to undertake embodied research.

6.1 Multispecies interaction promoted by living walls at One Central Park

The way in which One Central Park is designed, makes it more accessible for individuals to function, relate and create in multispecies collectives. The experiential quality of the building is a pathway from the lobby to the apartment, with limited places for human or nonhuman interaction on the way. Once inside their apartments, human residents engage in physical interactions with nonhumans in both the interior and exterior of the building. From my interviews, I found that people hardly knew their human neighbours, but could tell me about the plants, insects, birds, dogs and cats that they shared their space with, with relative ease. Furthermore, they could tell me how these other dwellers shaped the ways in which they

functioned. For example, one participant always kept her blinds down at night because she was trying to prevent midge bodies from entering her apartment. I also found that there were several factors that affected the willingness of human residents to coexist with non-domesticated nonhumans, especially animals. These factors of movement, noise, aesthetic preference, safety, waste, reproduction and destruction, were in part reliant on how much space there was to share, and on the configuration of each apartment.

6.1.1 Control and comfort

At One Central Park, the ability of human residents to control certain factors in nonhumans, determined how comfortable they were with sharing space (Figure 27). The amount of space that they had to share seemed to affect the level of control of these factors that they felt they needed. For example, having a large cockroach explore your 3-bedroom home is an easier form of multispecies co-existence than doing the same with a small studio apartment on the twenty-first floor of a high-rise. The factors below are based on the responses of human residents living in the East and West towers of One Central Park. The tone and language used in responses to questions about living with nonhumans, both comfortably and uncomfortably, were analysed, and dominant synergies were pulled together to create the list below.

<u>Movement</u>

The inability to control the movements of nonhuman animals, in terms of access or speed, was expressed by most participants as an issue. Human participants used negative connotations to describe cockroaches scuttling and birds flapping around. These types of movement were explained as unwanted and distressing. Alternatively, being able to keep a door closed to maintain the movements of a cat, or to use a leash, or vocal call, to control the movements of a dog, were described as reasons why these animals were so easy to share with. The act of controlling the range and pace of nonhuman movements were cited by all human residents as the reason for trying to include, or exclude, nonhuman animals from their apartment.

<u>Noise</u>

Control of noise was not seen as being as important as movement, but was still an issue. The thought of loud birds being outside the window (Belinda), cockroach bodies falling over each other, knocking their shells together, or moths being really ‘fumbly’ (Belinda), getting stuck under the bed and making a lot of noise, were seen as undesirable. Cara mentioned ‘I can take the noise and the hum of the city, because that’s great, but If I can’t escape from it then I’ll be exhausted’. For Frederick, the noise of animals like birds, could not ‘be any worse than the

traffic on Broadway… [or] the construction that's happening' across the road. This acknowledgement of the inevitability of predominantly human-made noise when living in the city was used as a reason for acceptance of nonhuman noise. Cara's need to be able to escape the noise produced by 'the city' demonstrates that it is the ability to control the persistence of noise that affects willingness to co-exist. She acknowledged the role of the double-glazed doors in her apartment in allowing her to escape. What if the noise is inside and providing relief from it can only be done through the death of another? Belinda's recount of bogon moths getting stuck under her bed, when living in a different building in Sydney, provided an example of needing to control persistent noise inside. She explained: 'they got stuck under the bed and because they're really fumbly, they make a lot of noise…their bodies are so fat. I didn't want to kill them, but they wouldn't get out'. She found the act of eventually killing the moths 'traumatic', but after several attempts to 'shoo them away' (Belinda, resident), and two days of little to no sleep, she felt that it was them or her.

Waste

The uncontrolled excretion of bodily waste was also cited as a factor of contention. Whether it was having to 'clean more' (Belinda), the colour, texture or mass of the waste, or the fact that it was not cleaned by the appropriate person, in a timely enough manner. Contrary to my expectations, it was the waste of domesticated animals that residents cited as being the biggest concern for co-existence. Owners were happy to share with dogs, because they could be taken outside to use the bathroom, and cats, because they could use a litter tray. But residents who did not own dogs highlighted the discomfort and disgust that they felt when dog waste was left inside. More generally, waste was also described as an issue because it attracted 'flies, dropping their maggots, [or] disease or dirt' (Belinda). Not being able to control dog waste was perceived to be an issue because of the secondary nonhuman entanglements that it provided the opportunity for.

Destruction

Similar to waste, the destruction of property was spoken about as making a mess. Much like noise, it was also spoken about in terms of competition. For Ben, 'The fact that cockroaches might nest in your furniture' was one reason to keep them away. For another resident, a bird flying in and making a mess around the place was deemed to be an issue. Considering these examples, it is possible to see how destruction compounds with movement; it is a result of the inability to control movement. This fear of the destruction of property determined the amount that residents would keep their windows open and how much they would spray for 'pests'.

Reproduction

The control of another's reproduction, or population numbers, is an issue of competition for resources; for food, habitat or material possessions. Some species, like cockroaches, have more of a reputation than others at One Central Park. Cockroaches evoked fearful descriptions from residents, due to the inability to control their rate and place of reproduction. 'They come at you in force' (Belinda) and 'with one cockroach comes many' (Cara). Similar descriptions were provided for flies: 'I do usually try to kill flies if I have them, because they multiply and they leave their maggots' (Belinda).

Aesthetic preference

Aesthetic preferences were relied upon to describe why having another around would not be preferable. 'I'd be ok with it if they were cute birds. If they were crows or bats I would probably freak out' (Belinda). Here, Belinda illustrates her discomfort with larger and harsher looking animals. The same attributes that might make these animals beautiful and enjoyable to be around for one human, could turn another off. Frederick claimed: 'My tolerance is ok for things that aren't overly gross'. Gross was a term that was used by several different residents to describe their discomfort with sharing space with certain nonhumans. It is an unqualifiable term, but definitely holds negative connotations.

Safety

Safety was the least relied upon condition for co-existence at One Central Park. The only nonhuman dweller that evoked this response, was bees. 'Bees are a bit scary' (Belinda). 'I think the only animal that would be a threat to me so far would be a bee, but I'm not really that concerned about that' (Frederick). Living in close proximity with others requires an awareness of risk. This is a fact of sharing with both human and nonhuman animals, as well as plants, elements and inorganic materials. As humans, living in a city in the Global North, we grow up with fables of living with certain kinds of people and animals. When we are put in situations where we do not have an understanding of our vulnerabilities and those of who we are sharing with, our response is usually distance or extermination.

6.1.2 Proximity and dualisms

In their study on embedding nonhuman habitat as a biodiversity conservation strategy in Brisbane's CBD, Stokes and Chitrakar (2012) found that this kind of infrastructure intervention would only be successful if it provided adequate distancing of 'wildlife' from human populations. One Central Park provides a forced closeness between 'wildlife' and the

humans that dwell there, which provides an interesting case study to engage with human conditions of sharing space, in close proximity with nonhuman others.

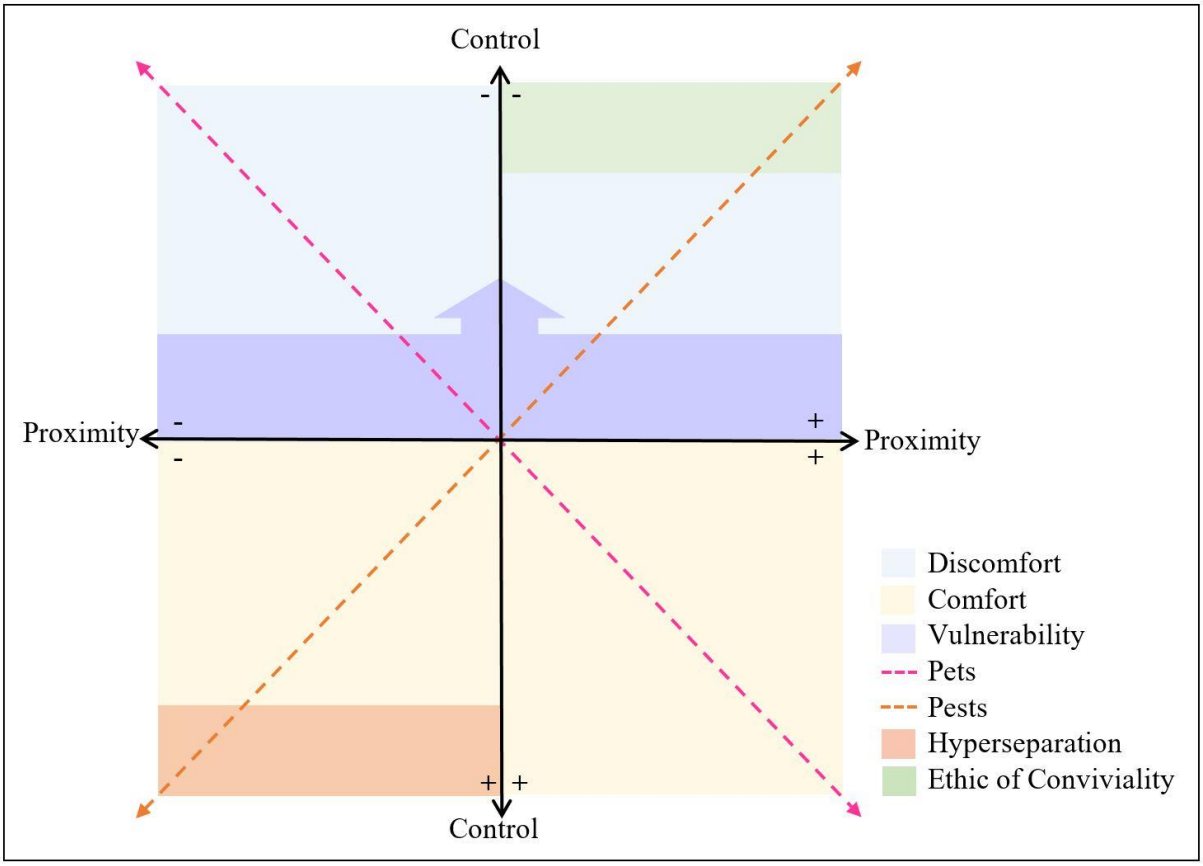

Figure 27: The role of control of proximity, and vulnerability, in multispecies co-existence

Much like Stokes & Chitrakar I found that the 'prejudices and valuation processes' (2012, p. 17) associated with a nature/culture dualism were expressed across my human participants. One participant stated 'humans have the indoors, we built the indoors… then there's the wild… we don't live in trees…in tree houses. We're not cavemen' (Belinda), while another, who believed that cities are purely human places, explained that they should only be shared with pets. Most participants used the terminology of 'natural' and 'nature', to categorise anything that was organic in appearance. Belinda's claim that 'we're not cavemen', illustrates the popular human assumption that the modern human is made through progress (Tsing 2017). As Tsing notes, the link between progress and capitalist modernity, in the timeline of the Anthropocene has ensured 'the spread of techniques of alienation that turn both humans and other beings into resources' (2017, p. 22). Belinda's justification for human ownership of certain spaces and the necessity for exclusion of nonhumans from said spaces, follows this idea of humans progressing and nonhumans staying static and separate, in the 'wild' (Cronon 1996).

The forced, close proximity provided by the design of the East and West towers, created the conditions for human residents to re-assess their relationship with this supposed 'nature', and

everything that comes with it. Seeing how plants flourish, how birds nest and feed, and how insects multiply, human residents are afforded a chance to witness urban ecology. This alone is unlikely to foster an ethic of conviviality for an equitable multispecies city, but it may provide the basis for the kind of learning and experiencing, necessary for one.

As shown in Figure 27, proximity is similar and related to movement, noise, aesthetic preference, safety, waste, reproduction and destruction. The ability for a human to control the proximity between themselves and a nonhuman animal provides them a sense of comfort. When this control is taken and an animal that is unwanted is too close, or a loved animal companion is too far away, the human is left vulnerable. This model applies to resident's relationships with plants and trees as well. For instance, one of the human residents in the East tower mentioned when she opened her window, all the leaves came in and her apartment would get incredibly dirty. This example of plants invading human space, causing discomfort, is discursively explained in the same way as nonhuman animal invasion of human space.

6.1.3 Proximity, comfort and vulnerability

Several of the participants interviewed mentioned needing an introduction to the plants to foster human/plant interaction. This introduction could be as simple as providing them with the scientific names of the plants that live outside their windows, or as complex as providing ecological information about the plants, what kinds of nonhuman animals they attract and what kind of environments they are usually found in. Isabel also questioned how residents could 'use the plants and actually interact with them'. For her it was a question of utility, she believed that a relationship should be built on the plants providing her a service. Other residents, who already acknowledged the service plants provided them in terms of well-being, expressed the desire to be able to have a physical, caring relationship with the plants. It is understandable that physical plant/human interactions in the East and West towers would not fit with health and safety standards. However, apartment specific introductions of plants and animals to residents in order to facilitate meaningful engagements, is obtainable.

Matthew Dodds from PTW architects is quoted as saying 'The plants will live as long as the residents want them to' (Manincor 2014, p. 44). This acknowledgement of the collective human ownership of the vegetal residents at One Central Park informs another one of the challenges of trying to create more opportunities for residents/plant engagement. The people, who ultimately have the final decision of the length of the life of the external vegetation, are the owners of apartments at One Central Park, but these owners very rarely live in the apartments. Only one of my participants was an owner, living in his investment. Most residents interviewed also mentioned the transient nature of the buildings, one of whom has

already moved out to a different apartment. The high turn-over of human residents in the East and West towers, makes a personalised introduction to the plants and animals slightly more difficult, but by no means impossible.

As stated above, the vertical and external qualities of the gardens on the East and West towers make the initial enhancement of habitat and the physical monitoring part of citizen science that Francis and Lorimer (2011) explore in their paper, impossible. However, the design of the apartments coupled with the intranet that residents have access to, could provide opportunities for facilitated engagements. This facilitation would include receiving information from the companies that designed or maintain the buildings about the particular plants and animals that live near residents, coupled with learning from other residents via the intranet and in person, and learning from nonhumans through acts of noticing. These facilitations would be done in attempts to equip human residents with the tools for an attentiveness to the ways of life of their vegetal, avian, mammal and insect dwelling mates; an attentiveness that would be taken with them, if they decided to leave One Central Park. Furthermore, in future green infrastructure designs like this one, resident interaction with the plants could be worked into design, to make them more safely physical.

6.2 An ethic of conviviality in an equitable multispecies city

6.2.1 What does it look like?

van Dooren and Rose (2012) state that conviviality requires an effort toward inclusiveness. It is an endeavour to make room for others in activities in shared places. An ethic of conviviality in a city 'provides a space for the flourishing of as many different forms of life as possible' (van Dooren and Rose 2012, p. 17). If we are to think of One Central Park as a shared multispecies place, an attempt to allow as many as possible to flourish would require human designers, and human residents to see themselves as part of the ecology of the buildings and the city (Houston *et al.* 2017).

In the era of the wealthy Anthropos, busy cities can be manoeuvred by humans with relative ease, even whilst staring down at a phone. In order to engage in this kind of behaviour, the average cosmopolitan human resident must have some kind of knowledge of, and be comfortable with, the movements of their fellow urban human. An animal, that walks around with little attention to its surrounds, with relatively limited fear for its survival, inadvertently loses an attentiveness to the plight of anyone else around them. To create an ethic of conviviality, is to ask human city dwellers to reconsider their relationship with vulnerability (Green and Ginn 2014, Taylor and Pacini-Ketchabaw 2015, McKiernan and Instone 2016). In this sense, an ethic of conviviality in an equitable multispecies city is attentive (van Dooren *et*

al. 2016, Tsing 2017) and it entails genuine consideration and calculated thought about movements, interaction, consumption and dwelling. As Taylor and Pacini-Ketchabaw note, 'paying close attention to our mortal entanglements and vulnerabilities with other species, no matter how small, can help us to learn with other species and rethink our place in the world' (2015, p. 507).

In terms of the factors listed in section 6.1.1, an ethic of conviviality would entail a realignment of human function that ensured experiences that were both in the comfortable and uncomfortable quadrants (Figure 27). It would include strategies that saw human dwellers becoming more attentive to their surrounds to allow themselves to be more vulnerable, in order to leave more space open for others to flourish in close proximity. However, how can this attentiveness be fostered?

6.2.2 Fostering attentiveness

> 'Without Man and Nature, all creatures can come back to life, and men and women can express themselves without the strictures of a parochially imagined rationality' (Tsing 2017, p. vii)

At One Central Park, and in buildings similar to the East and West towers, helping people to accept comfort and discomfort could be fostered in two ways. As Isabel suggested, residents, including those who are renting, should be provided with information about the plants that they are sharing their space with and if over time, an ecosystem starts to form, the residents should be informed about it. There are several challenges to this kind of strategy. Who should be the entity to provide the information? How can the delivery of information be sustained to keep up with dynamic relations and what if residents do not want to be informed? As the One Central Park precinct is privately owned, the dispersal of information would need to come from one of the organisations that have funded the project. They too would need to sustain the delivery of information to residents. The individuals contracted to maintain the plants on the buildings are very capable and passionate. With a team of 6 working every day to ensure the medium to long term life span of the plants, they are incredibly busy. Maybe there is a new role to be created for the cause of disseminating place specific information to the residents in order to ensure social support for the flourishing of these kind of living wall interventions in the long term.

The other way this kind of comfortable and uncomfortable conviviality could be fostered is through thoughtful urban design. The apartments in the East and West towers do not have flyscreens. They do however have large double-glazed doors that are very good at keeping noise out and at moderating the internal temperature of the apartments. Most of my

participants mentioned this lack of flyscreens as an issue for them. It made their interaction with the gardens outside one of fear and competition. They made trade-offs between having fresh air or having birds and insects come into their apartments. For apartments on the much higher levels of the East tower, flyscreens might not be necessary because bugs and birds may be much rarer at those altitudes, but for most human dwellers living in the East and West towers, flyscreens may help to provide some feelings of comfort in order to quash resentment towards the plants, birds and insects that live in such close proximity to human residents. This simple intervention would help to limit places for multispecies conflict in apartments, which would in turn limit levels of resentment towards nonhumans. This reduction of aggression towards nonhumans would then provide more opportunities for fostering attentiveness.

The application of living walls either as a strategy for reconciliation ecology, to moderate urban microclimate, or to create an iconic building, needs to be coupled with strategies that foster an ethic of conviviality among the human residents that live closest to it. If this is not achieved, the forced close proximity between humans and 'wildlife' that living walls provide, could further entrench dualistic thinking. Living walls built into residential infrastructure provide a rare opportunity to engage in building-wide facilitated engagements. Although response to these facilitations may be varied across tenants, the possibilities for them to be promoted bottom up using technologies like an intranet hold promise in promoting citizen stewardship in parts of the urban human population.

6.3 Contested biocultural belonging in the city

As Warren so aptly stated in his interview: 'Some purists would say that [the vegetation on the towers] is all introduced weeds, but aren't we all introduced weeds?' In urban environments, humans could be seen to embody the persona of a noxious, invasive weed. The fetishisation of the city as a purely human place has ensured the construction of cities with predominantly human habitat as well as the suppression of any other species that flourishes in this 'human' habitat. Head *et al.* ask anecdotally 'What does it mean for a tree to be 'out of place'?' (2014, p. 862), when it is flourishing in a 'foreign' environment. The plant species that were chosen to live at One Central Park, were described as 'proving themselves' (Bryan, architect) as being capable of surviving in the harsh environmental conditions that a high-rise building provides. One species that I identified in my observations of the buildings, was pig face (*Carpobrotus rossii*), which is most commonly found on sand dunes. It is a succulent, creeper that can withstand gale force winds, sea spray and fire. Is pig face 'out of place' on the walls of the East or West tower at One Central Park? I do not think it is. It flourishes, it stays resilient and it co-exists with all the other species at One Central Park. In this sense, pig

face belongs, not just because it fits within human design and dwelling at One Central Park, but because it can coexist with its vegetal, avian and insect neighbours, as well as with the elements it must coexist with to flourish. Much like a duck on a rice field in Mudgee (O'Gorman 2014), the individual pig face plants have the potential to make a new home in the city, even if with the help of humans. They have the ability to experience and be experienced by those around them in both positive and negative ways.

The presence of casuarinas at One Central Park provides a different kind of biocultural scenario. Is a casuarina 'out of place', or are the East and West towers 'out of place', in modern day Chippendale? By what logic could we say that the buildings belong less than the casuarina seedling does? The fact that a building is human-made is not cause for deeming it out of place. If we are to situate humans ecologically, we must acknowledge the presence of more-than-human-made structures, economies and technologies as an integrated part of the landscape. Maybe it is the ability for one of these entities to co-exist in symbiosis with most dwellers at One Central Park that might determine their belonging. Casuarinas have lived in what we now call Chippendale for a much larger period than buildings have existed there, they are deemed a native plant (Trigger and Mulcock 2005, Frawley and McCalman 2014). The buildings and the casuarinas cannot co-exist because, as the casuarina seedlings grow, it would affect the structural integrity of the building, which would in turn affect the ecosystems living there in a negative way. In this sense, casuarinas would not adhere to an ethic of conviviality, they would not allow the flourishing of as many beings as possible. So maybe there is a case to claim that the East and West towers and everything that they are composed of, do in fact bioculturally belong in Sydney City and casuarinas do not belong at One Central Park.

6.4 Doing research as and with the more-than-human

6.4.1 The role of access in being affected

In their promotion of 'engaged witnessing' in more-than-human social research, Bell *et al.* engage with the need for a 'concerted attempt to accept or be open to being changed, moved or shifted through paying close attention and becoming immersed in more-than-human engagements' (2017, p. 2). There were several features of the East and West towers at One Central Park that made the ability to pay close attention and become immersed quite difficult. These were: the vertical nature of the site, the external gardens, and private ownership of the apartments. Combined these made opportunities to be affected as and with more-than-human difficult, but not impossible.

Through the bricolage approach, which entailed actively choosing methods that would afford me the greatest chance to immerse myself in such an inaccessible site, I feel there were opportunities to engage with more-than-human encounters and to engage with nonhumans as active participants. Although limited access made 'grappling with unfamiliar sensoriums' (Kirksey and Helmreich 2010, p. 565) more of a reflective practice than an active one, my personal experience in doing this research at One Central Park highlighted the role of ecology, ethology and the creative arts, in aiding these kinds of explorations. From a very physical level, having a basic understanding of the ecology and ethology of the site, helped to navigate the complex interactions that exist at One Central Park. I imagine that having a more sophisticated understanding of the ethology of certain species that were seen dwelling at the site, would have provided a much better foundation for being affected by them. In terms of presenting data, although I have attempted to express my own more-than-human engagement with the East and West towers in Chapter 5, I feel that the dynamic nature of the buildings cannot be properly explained with the written word. Whilst doing this research, I started to see the buildings as a moving, breathing, loudly snapping entity. In future research, utilising artistic forms of expression will allow a much richer communication of my embodied experience.

6.4.2 Following the human

> 'Situated naturecultures, in which all actors become who they are *in the dance of relating*, not just from scratch…but full of the patterns of their sometimes-joined, sometimes-separate heritages both before and lateral to *this* encounter' (Haraway 2008, p. 25)

As shown in Figure 28, this research witnessed multiple relations at One Central Park, either directly or indirectly. Much like Pacini-Ketchabaw and Taylor (2016), I found that my efforts to follow the relations that constituted the lives of the dwellers of One Central Park, were easily led toward 'following the human'. This may have been because the relationships that I was able to foster the most in this research, either in person, or through historical research, was with humans. I think one of the ways to overcome this comfortable following of the human in research, is through immersion. Being in a place, physically witnessing or experiencing encounters, the researcher could be mindful of the thought processes as they are happening. They could follow movements of more-than-human worlds and attempt to use equal consideration for as many beings involved as possible. This is reliant on the level of risk association with the researcher's presence to witness relations. It is possibly a lot easier to engage in this kind of practice somewhere like One Central Park, looking at human/plant

encounters, but may be much more difficult when working on something like shark encounters.

'Narrating urbanism-as-assemblage' (Dittmer 2014) is a good strategy to move past having purely human protagonists when presenting data. By adopting the perspectives and temporalities of nonhuman as well as human protagonists, choosing to focus on relations primarily and characters secondarily, a more balanced portrayal of the relationships between individuals in a multispecies entanglement could be possible. This research into nonhuman temporality and corporeality would help to refine the researcher's attentiveness to nonhuman individuality. This is a strategy I tried to employ in my research, but still found myself following the human. I believe that with a larger time frame, and more access to the site, this strategy would have been much more effective.

6.4.3 Removing individuality through categorisation

There is so much biological and material diversity on the East and West towers of One Central Park, yet I found that both the human residents and myself, used grouping terms like 'the plants', 'the birds', or 'insect' when referring to one particular individual that a resident lived with. This basic categorisation assumed the agency of a species or group collectively, and ignored diversity within the species and between the species and others (Gibbs *et al.* 2015).

Using descriptive, and particular, terms to explain individual plants, birds or insects, even if the scientific or common names were not known, helped to move past this generalised simplification of nonhumans dwelling at One Central Park. Residents would explain one individual plant that would come into their window when given the opportunity, or one plant with brilliant bright pink flowers that would attract a certain group of grey, small birds, who would sit on one vine, on one stainless steel wire, outside one of their windows.

Grappling with this issue has made me think that undertaking more research into the individuals and the species that exist at a site, prior to interviews, would be beneficial. This gathered information could be utilised to provoke memories of individual nonhumans from the interviewees, by coupling it with the use of visual aids.

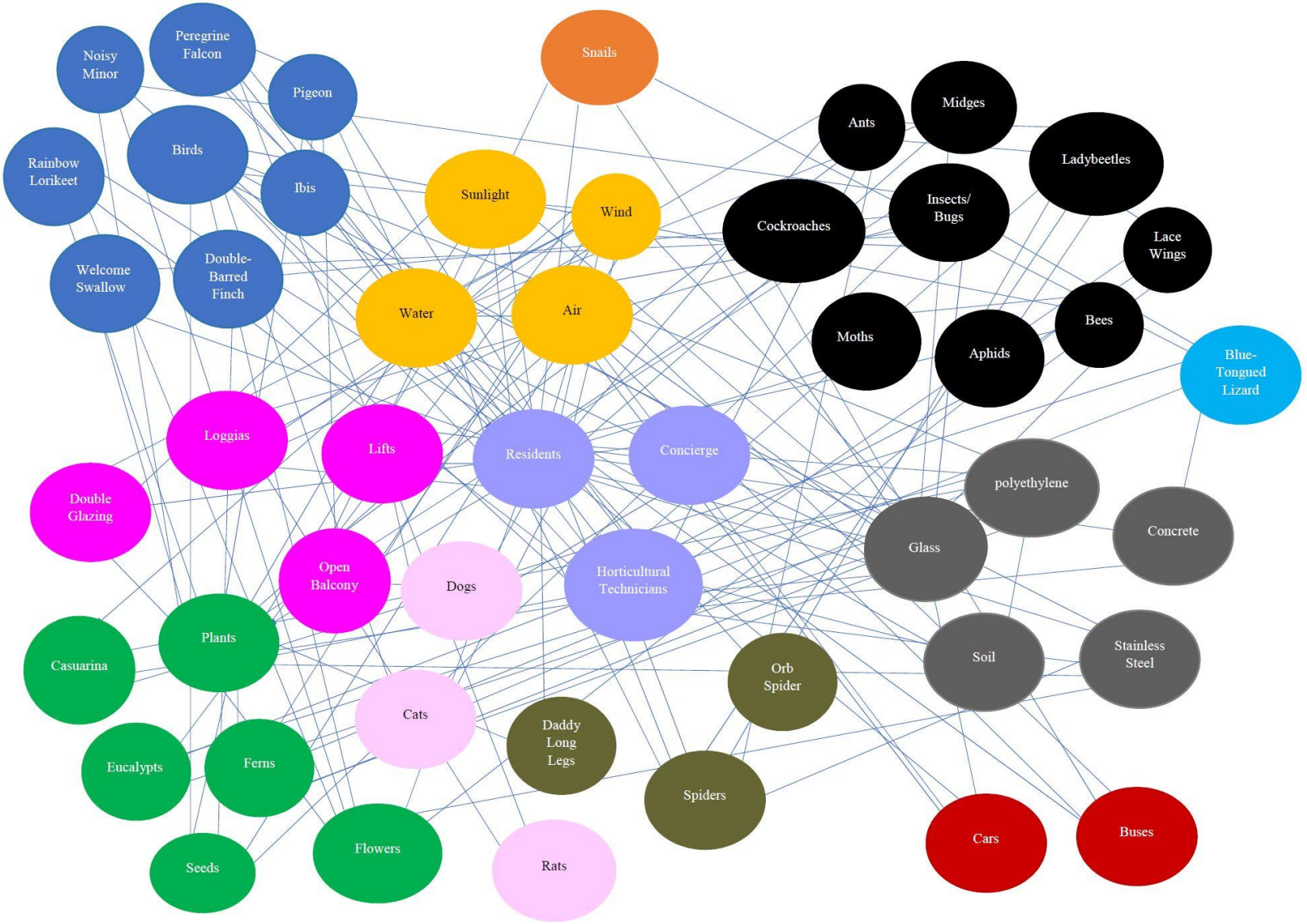

Figure 28: First hand connections at One Central Park (from personal observations or human participant interviews)

7. Conclusion

In the Anthropocene, the projected growth of human urban populations worldwide, coupled with a popularised fear of ecological collapse, has guaranteed that a range of solutions are being proposed by governments and implemented by environmental consultants, private companies and members of the public, in attempts to stay within the planet's 'safe operating space' (Rockström *et al.* 2009). Many of these strategies are conceived with thinking based on the human exceptionalism and binary thinking that are believed to be the cause of the problems that characterise the Anthropocene. I have coined the term 'more-than-conservation' to classify conservation efforts or theories, that acknowledge the continual reconstitution of worlds (materials, knowledges, technologies, infrastructure, economy, and so on) and that look to decentre the human in considerations of the development, dwelling, design and conservation of cities. More-than-conservation builds on the efforts of traditional anthropocentric conservation, but involves more than just human actors, more than just human cities and more than just human rights. I believe more-than-conservation, coupled with conservation efforts in the nonurban context, is an important concept and practice, because it has a focus on working with, and reconceptualising urban environments instead of widening the already existing gap between the urbanised city and the protected and utilised 'wild'.

Embedding living walls into urban infrastructure is one of the many strategies being implemented to strive towards more ecologically conscious cities. This intervention can help to provide more nonhuman habitat in cities, sequester carbon and reduce heat island effects, and with the sustained development of technologies and design, might become much more popular in the near future. The forced close proximity between humans and 'wildlife' that this type of intervention enables, provides opportunities for equitable multispecies co-existence, and provides space for multispecies conflict. If coupled with facilitated engagements and thoughtful urban design, living walls on residential buildings, could provide opportunities to foster attentiveness to nonhumans, contributing to an ethic of conviviality among residents. If this coupling does not occur living walls may instead entrench existing dualisms, like that of nature/culture and wild/domestic, within the city, which could in turn enable a sustained reliance on anthropocentric forms of conservation in response to urbanisation.

Three key themes, temporality, biocultural belonging, and multispecies conflicts, emerged from the storied approach utilised in this research. Engagement with human/nonhuman storying was coupled with a bricolage approach, comprising semi-structured interviews,

observation, participatory photography and review of grey literature, historical sources and ethology literature, to develop a more-than-human geography (Chapters 4, 5 and 6) of the East and West towers at One Central Park. In these chapters humans and nonhumans dwelling at One Central Park were explored temporally and spatially, to understand their engagement with, or as part of, the living walls and to understand how these engagements may affect willingness to co-exist in close contact.

Much like other research on embedding nonhuman habitat in infrastructure, I found that the 'prejudices and valuation processes' (Stokes and Chitrakar 2012, p. 17) associated with a nature/culture dualism were expressed across my human participants. At One Central Park, these valuation processes, coupled with the perceived need to control certain factors, affected whether humans either included or excluded nonhumans from shared space and what kind of strategies they employed to do so. The importance of control of the factors, of movement, noise, aesthetic preference, safety, waste, reproduction and destruction, were reliant on how much space there was to share, and on the configuration of each apartment. van Dooren and Rose (2012) state that conviviality is an endeavour to make room for others in activities in shared places, which requires an effort toward inclusiveness. Building on existing environmental humanities literature, I argue that living walls, coupled with facilitated engagements and thoughtful urban design, could help to foster attentiveness in human residents, contributing to an ethic of conviviality. Through encouraging human residents to 'notice' (Tsing 2010, 2017) and consider those who have been invisible to them in the past, or to provide them the tools to develop the noticing they already engage in, more equitable cohabitation in cities may become more achievable.

This relatively localised and narrowly focused research has provided place-specific insights that could be used as a resource for similar research in different locales, or types of cities. These findings could be further developed in future research at One Central Park, or in buildings similar to the East and West towers, through engagement in a multispecies ethnography. This would entail a prolonged stay in one of the towers providing first hand immersion into the dwelling experience. This embodied research would allow more opportunities to be affected and to physically witness and experience multispecies encounters. The findings could also be extended through a participatory study on the implementation of facilitated engagements, including citizen stewardship initiatives in these kinds of buildings. To explore whether they would be effective in fostering attentiveness and an ethic of conviviality, and what the challenges to their implementation might be.

The implementation of living walls either as a strategy for reconciliation ecology, to moderate urban microclimate, or to create an iconic building, needs to be coupled with strategies that foster an ethic of conviviality among the human residents that live closest to it. As interventions that look to incorporate nonhuman habitat into urban infrastructure become more popular, city dwellers will need a more conscious urban ecology within which humans are a part. As we continue to question what it means to be human in the Anthropocene, it seems pivotal to build our skills in attentiveness, in order to notice the multispecies sociality and co-constitution that makes cities.

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Appendix A: Guiding Interview Questions

Questions for residents

- What do you do?
- How long have you been living in the building?
- Where do you live in the building? (draw)
- Do you have a balcony?
- Do you rent or did you buy?
- Do you share the apartment with anyone?
- Why did you choose to live at One Central Park?
- Is the green star rating one of the reasons you live here?
- Have you always lived in Sydney?
- Have you always lived in a city?
- Have you always worked in a city?
- What could be done better at One Central Park?
- Do you use the public spaces in the building?
    - How?
- Do you know other people in the building?
- What kinds of animals and plants do you see in, outside of, or nearby your home?
- Do you have any pets?
- Have you had any pests in your apartment?
- Have you gotten rid of them?
- What do you think the benefits of living in the building are?
- Do you think green infrastructure is important?
- Have the plants outside your window ever died?
- Do you think cities are purely for humans?
- Who would you share your space with?
- What's your ideal living situation? (house, apartment, farm, garden)
- Do you think that living here has changed your attitude towards living near plants, birds and insects?

Questions for organisations

- What was your role in the design and development stages of One Central Park?
- Could you give me a rundown of those involved in the project?
- What is the purpose of One Central Park?
- Why were particular plant species chosen for the building?
- How important is a green star rating?
- What were the challenges in designing OCP as a green building / challenges in building and maintaining?
- Do you think One Central Park has achieved its goals as a green building?
- Have you spent much time at Central Park?

Questions for everyone

- Who belongs in a city?
    - Humans?
    - Rats, dogs, cats, bees, cockroaches, falcons, pigeons, possums?
    - Gum trees, palms, shrubs, cacti?
- Why do you think so?
- Does this need to change?
    - (If yes) How can this be changed?

Appendix B: Example of Journal Entries

When will we get a more-than-human ethics application (17th June 2017)

I found the ethics process quite difficult for this project. In my human research ethics application, I detailed my research and received the following comment from the committee:

'Please clarify what the nonhuman aspect of the project involves and how will the nonhuman beings' involvement in the research be assessed. For example, does nonhuman refer to plants, animals, or archival documents?'

This is a very legitimate question and I had obviously not expanded appropriately in my ethics application. My response was:

'In this instance nonhuman refers to plants, animals, building materials and elements that make up the site. Nonhuman beings' will be assessed in terms of human attitudes and experiences with nonhumans. These experiences of more-than-human worlds will be ascertained from semi-structured interviews. This human experience will also be supplemented with photos that have been taken by residents.'

When I was granted my ethics, I was given the caveat:

'In relation to the observations of animals, you will require Animal Ethics Committee approval if you intend to observe and publish information about the observations'

After receiving this I perused the animal ethics application and found that my research did not fit. The questions that were asked were about the use of labs, about the conditions that animals would endure in labs and what kinds of interference or harm would be inflicted on animals in the research. In my time at One Central Park, my 'observation' of 'animals' was limited to pigeons, ibis and dogs in the public park, as well as some butterflies and snails through a window. I did not apply for animal ethics for this project.

It did however make me wonder if it's maybe time for a more-than-human ethics form. I felt that my intended research with nonhumans would benefit from large amounts of questions on ethical conduct that were found in the human research ethics form.

Moving past anthropocentrism (18th July 2017)

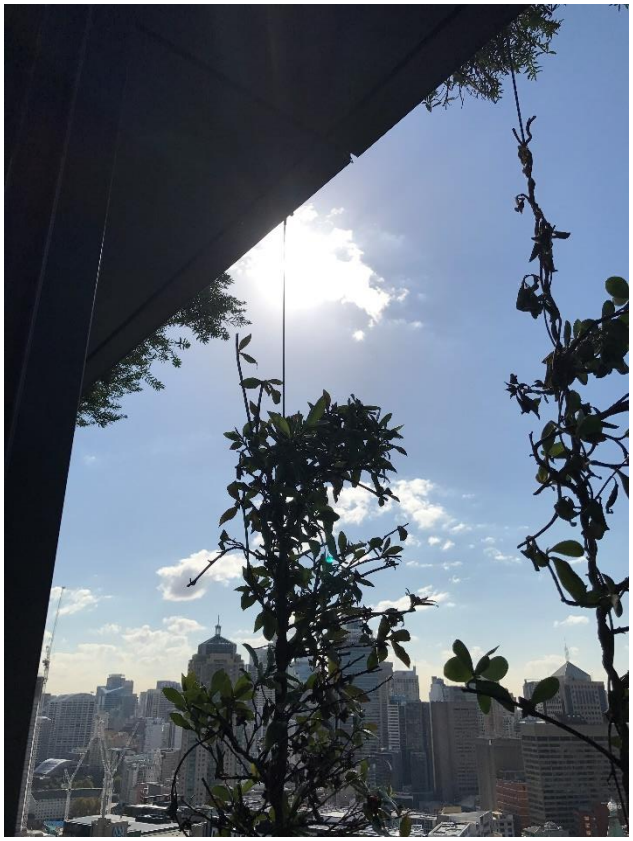
While presenting my research at the International Graduate Conference this year in Bangkok, I was asked if it was really possible for humans to be anything but anthropocentric in our study of nonhumans. My response was, 'can we ever really be impartial when studying another human subject? We make assumptions about their answers to questions, about their observed actions and about their emotional responses. These assumptions are based on our own personal contextual lens. Human-human research is an exchange using forms of communication, which for the most part, are comfortable for all parties involved'. This is not always the case though. Human researchers engage in research with other human societies where the actions or subtle nuances of language (spoken or not) of participants are probably lost, or learned over an incredibly long period of time. Maybe it is this willingness to stick it out, form relationships and make oneself vulnerable the can help to minimise anthropomorphism. Transparency is probably also key. In scientific research, you actively confess any biases who can conceive that may have affected your interpretation of results. In embodied research you do something similar, you acknowledge yourself and all that you are, but you also acknowledge the others you study, and most importantly, acknowledge the knowledges that are produced out of your encounters. Maybe sitting with the discomfort of not being able to feign truth, and instead acknowledging the possibilities, is a good place to start.

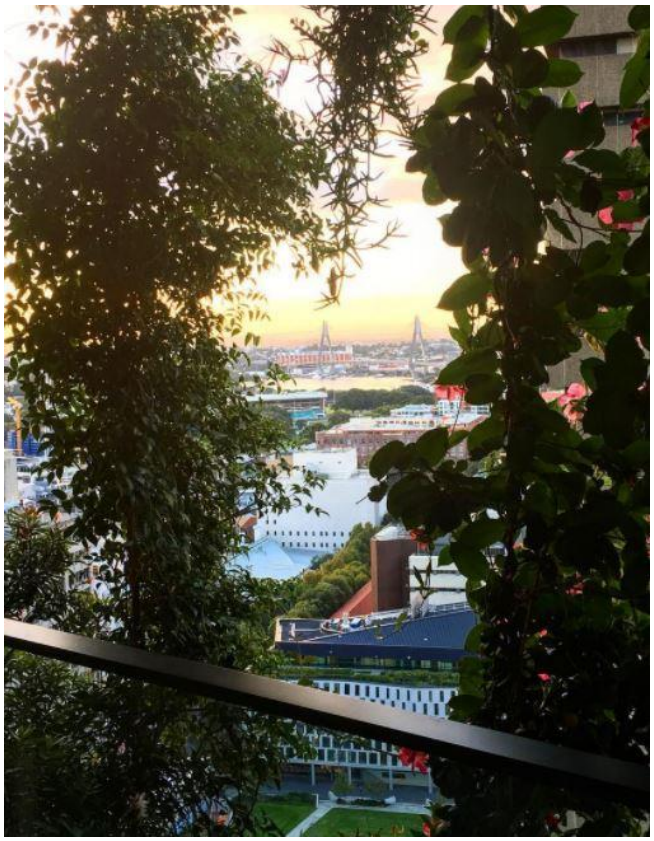
In their article Moore and Kosut ask the question, how can we 'interpret and translate the actions of another species while resisting anthropomorphic descriptions?' (Moore and Kosut 2014, p. 516). This question is a bit more of a nuanced version of the one I was asked in Bangkok. It highlights the role of interpreting something that is communicated from a nonhuman and translating it to make sense in human language. The issue with anthropomorphism is that a human is using their understanding of the world to make sense of the meaning of the actions of a nonhuman. This is similar to the use of etic explanation instead of emic. In history, etic explanation would entail using the thought systems, paradigms and morals that are dominant in present-day, to judge actions from a period in the part with incredibly different dominant paradigms. While emic explanation would only use the thought systems of that time period in interpretation of data. I guess the difference in human/nonhuman research is that there is no written record of the ways of being of a particular nonhuman individual or group, written by them, to reference back to. I wonder if fears of anthropocentrism can be shifted with a shift in conceptions of human identity. The work in more-than-human geographies and environmental humanities are exploring ways of

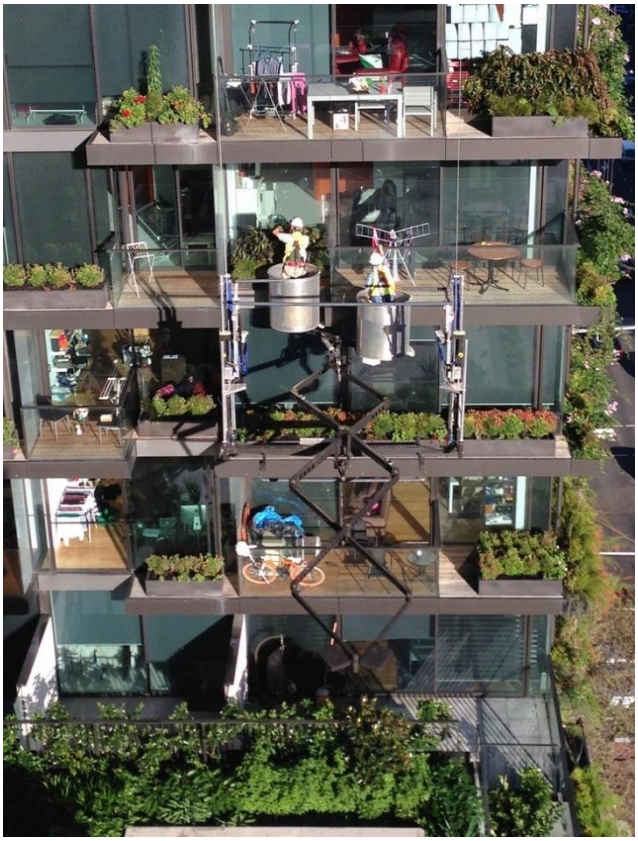
acknowledging the communication and experience that happens outside of the human written or spoken word. I think the idea of acknowledging the way a nonhuman individual or group stories their experience is one way to enrich nonhuman interpretation and limit anthropomorphism. The issue with interpretation is that it suggests understanding the meaning behind something happening. In qualitative research with humans, there is this idea that we can just ask humans the meaning behind their actions or beliefs. But what if there are other ways to 'ask' about meaning and intention, that are outside of the spoken or written human language…

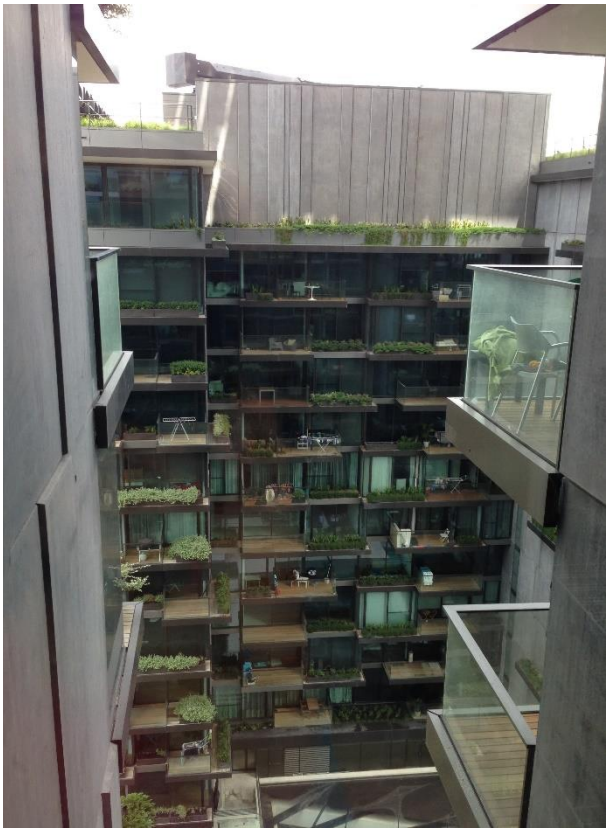
Appendix C: Participant Photos

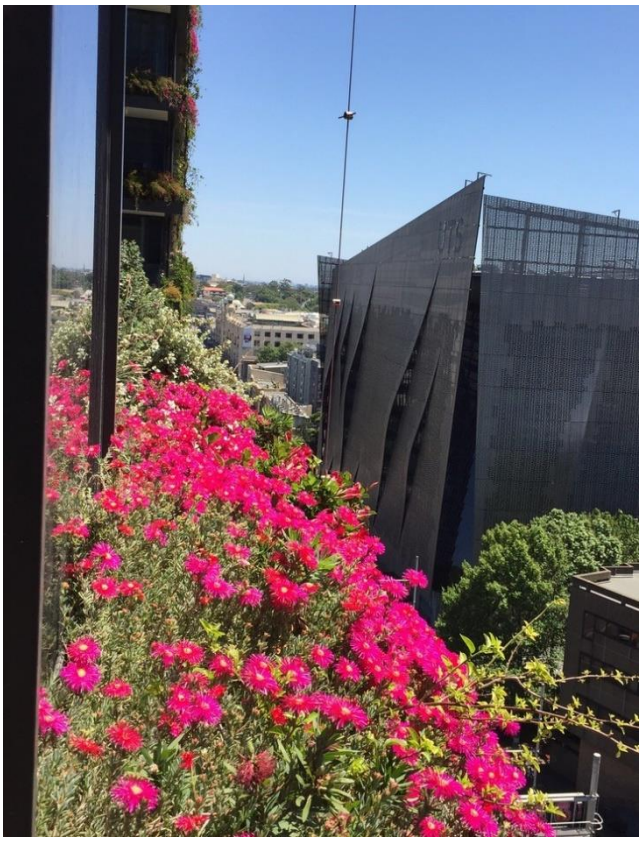

UTS

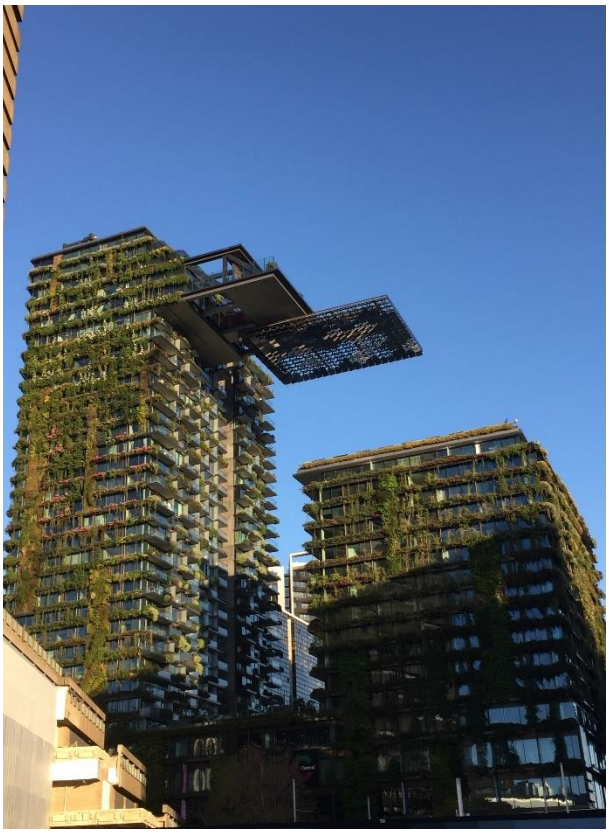












Appendix D: Storying Experience at One Central Park