1-2024

Lion City zoopolis: Urban crittizenship in biophilic Singapore

George WONG
Singapore Management University, georgewong@smu.edu.sg

Routledge
Taylor & Francis Group

Anthrozoös

A multidisciplinary journal of the interactions between people and other animals

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rfan20

Lion City Zoopolis: Urban Crittizenship in Biophilic Singapore

George Wong

To cite this article: George Wong (22 Jan 2024): Lion City Zoopolis: Urban Crittizenship in Biophilic Singapore, Anthrozoös, DOI: 10.1080/08927936.2024.2303229

To link to this article: https://doi.org/10.1080/08927936.2024.2303229

ANTHROZOÖS
https://doi.org/10.1080/08927936.2024.2303229

Routledge
Taylor & Francis Group

Lion City Zoopolis: Urban Crittizenship in Biophilic Singapore

George Wong

School of Social Sciences, Singapore Management University, Singapore, Singapore

ABSTRACT

A central theme of Singapore's "City in Nature" vision is framed through biophilic urbanism, or efforts to harmonize biodiversity and urban development through built, social, and political design. The central discourses of Singapore's biophilic urbanism have revolved around flora-centric paradigms, including habitat conservation, greening spaces, and access to natural capital. This paper detours from conventions of Singapore's urban ecological futures and instead explores the governance of fauna co-existence in the city–state through the concept of "urban crittizenship." Defined as a more-than-human denization framework that interrogates urban wildlife governance, urban crittizenship interrogates the politics of urban wildlife's rights to the city. Drawing on interviews, publicly accessible data, and ethnographic findings with local governing actors and activists, I show that Singapore's experience of urban fauna governance is framed through three categories ("resident," "wildlife," and "pest") and that they inform how state and society mediate and manage coexistence with urban wildlife. These experiences are examined through the examples of otters, boars, and pigeons, respectively. In doing so, I present urban crittizenship as an inductive model of analyzing urban wildlife coexistence as primarily secured through infrastructural and political regime configurations that inform their crittizenship statuses. Any real shifts toward new forms of coexistence must therefore begin with actual transformations in these areas. I further iterate that using an urban crittizenship framework refines our understanding and application of biophilic urbanism as socio-political processes that influence already-existing urban wildlife coexistence, complementing existing analyses in urban ecology. In other words, there is a politics of biophilia that warrants a conversation, because biophilia is political.

KEYWORDS

Biophilic urbanism; human–animal interaction; Singapore; urban coexistence; urban ecology; urban wildlife

Urban ecology has gained traction as urbanization spreads globally (Concepción et al., 2015; McPhearson et al., 2016). Instead of viewing urbanization and biodiversity as opposites, scholarship, and policymaking have increasingly found complementary approaches in aligning the two. One such headway is the biophilic urbanism literature. Biophilic urbanism is defined as designing and cultivating nature-based urban environments through solutions to support biodiversity in urban life (Beatley, 2016; Tabb, 2021). It

CONTACT George Wong georgewong@smu.edu.sg School of Social Sciences, Singapore Management University, 10 Canning Rise, Singapore 179873, Singapore

synthesizes biophilia, characterized by including nature-based ecosystems, solutions, and processes (Kellert et al., 2011), with urban design, planning, and governance (Beatley, 2011). Singapore is often touted as a successful case of biophilic urbanism (Newman, 2014; Xue et al., 2019), and its most recent rendition of biophilic urbanism is its "City in Nature" vision, as part of Singapore Green Plan 2030. A central goal is expanding Singapore's existing 78,000 hectares of green spaces, providing biodiversity protection through habitat management as part of sustainable urban governance (National Parks Board, 2022).

This vision, however, reveals Singapore's flora-centric paradigmatic bias. Green spaces are often assumed to represent both flora and fauna biodiversity and the proliferation of green spaces automatically leads to flourishing wildlife. These assumptions, however, do not apply to animals known as "urban wildlife" (Perry et al., 2020). These animals either do not recognize distinctions between the "urban"/"wild" spaces or regard urban environments as part of their habitats. Yet, much is neglected about how urban wildlife is configured in Singapore's model of biophilic urbanism.

In this paper, I inductively develop a framework of "Urban Crittizenship" by unpacking Singapore's case of urban coexistence of urban wildlife within biophilic urbanism to address two key concerns. Firstly, how do we map our biophilic relations with urban wildlife as framed through socio-political relations? Secondly, how might such framing help us understand urban wildlife's coexistence in urban contexts?

Urban Wildlife and Urban Ecology

Discussions around urban wildlife are as old as urban planning scholarship itself. Early works emphasized the dangers of urban wildlife as public health issues brought about by "pests" such as pigeons and rats (Coppock, 1879; Eldridge, 1900; Jerolmack, 2008). These works framed urban wildlife as vectors of disease transmission and proposed extermination as a management solution. Similarly, early urban planning movements rendered urban wildlife as peripheral. One such example is Ebenezer Howard's Garden City movement. While Howard championed integrating natural environments to ameliorate the negative effects of industrialization (Clark, 2003), Garden City makes little acknowledgment of urban wildlife (Evans, 2003).

Discussions on urban wildlife coexistence began flourishing in the 1960s in response to global urbanization. The focus then was on mammal and bird species movements in Global North cities (Magle et al., 2012). This led to new urban frameworks that incorporated urban wildlife into consideration (Adams, 2005). Examples include the Netherlands' "ecological landscapes" approach (Ruff, 1987), Durban South Africa's Metropolitan Open Space System (D'MOSS) (Roberts, 1994), and Singapore's green corridors (Briffett et al., 1999). Despite eventually introducing urban wildlife management into urban planning, these discussions have almost exclusively regarded animals as foreign to urban spaces. This management angle also systematically privileged ecological impacts of human-on-animal interactions, resulting in mitigating hazards of urbanization posed to animals (Leedy & Adams, 1984; Wittmann et al., 1998). These include fencing up habitats or translocating animals away from urban fringes. More recent works signal a political turn, advocating for animal ecologies in and of the city to be taken seriously (Davies et al., 2004; Wolch, 2017; Wolch & Emel, 1998). This turn attracted new theoretical insights such as

Animal Rights Theory and its variants into the debate on how urban wildlife should be managed (Benton, 1993; Hovorka, 2008; Regan, 2004).

One such contemporary work of notable interest is Donaldson and Kymlicka's (2011) *Zoopolis: A Political Theory of Animal Rights*. Critiquing animal rights theorists as reducing human–animal relations into negative rights to life and liberty, they proposed positive rights based on relational and philosophical–political grounds. They categorized animals into three sets of relations: domesticated, wild, and liminal. Of interest to this context are liminal animals, where urban wildlife are conferred an in-between status, which Donaldson and Kymlicka suggest requires reckoning toward how societies construct "denizenships," or categories of urban coexistences, to recognize them.

Singapore is a fitting case to extend Donaldson and Kymlicka's works on liminal animals and denizenships for three reasons. Firstly, the city–state has been touted as a successful example of biophilic urbanism (Beatley, 2016; Newman, 2010, 2014). With its characteristics of a city–state, the wholly urban setting is a useful analytical perimeter. Secondly, as highlighted above, Singapore suffers from flora-centric bias (Beatley, 2011; Beatley & Newman, 2013). Shifting the analytical lenses offers us greater clarity on the relationship between urban wildlife coexistence and biophilic urbanism in Singapore. This is crucial for a third reason: the topic of urban wildlife coexistence has received increased public attention in recent years.

Urban Crittizenship

Inductively deriving a summative model through Singapore's experience of biophilic urbanism, I present Urban Crittizenship as the paper's central contribution. Urban Crittizenship (UC) is defined as a more-than-human denization framework that situates the governance of urban wildlife as a political ontology. UC distinguishes itself from Animal Rights Theory, which recognizes human–animal relations through noninterference with animals' universal negative rights to life, freedom, and autonomy (Edmundson, 2015). This includes not being harmed, killed, or captured. Instead, UC aligns with "Denizenship Theory" (DT), which focuses on positive rights (Donaldson & Kymlicka, 2011). DT considers liminal animals as differentiated from domesticated ("pets") and wild counterparts. It calls for relationships of "co-residence," distinguished by urban wildlife's existence in human settlements due to anthropocentric colonization of biological resources and microclimates (Donaldson & Kymlicka, 2011, p. 217).

UC adapts and extends DT in two ways. Firstly, UC contends that ethical-normative expectations for urban wildlife proposed in DT begin from unrealistic socio-political positions (Kymlicka & Donaldson, 2014). Instead, UC examines already-existing political configurations as the original position for interrogating urban wildlife coexistence. Simply put, political coexistence is framed through interrogating what "rights" to the city (Lefebvre, 1996) mean for urban wildlife. UC situates the "terrains" (Elden, 2021) that overlay political-strategic sensibilities of how societies configure urban ecologies, biophilic urbanisms included. Secondly, DT precludes considering governance as a meaningful framework for urban wildlife's co-existence by " … accept(ing) that liminal animals belong here, but not under our governance" (Donaldson & Kymlicka, 2011, p. 241). On the other hand, UC regards governance as a crucial framework in mediating and making

possible different forms of urban wildlife's coexistence in urban environments (König et al., 2020). In doing so, UC reconciles biophilic relations with urban wildlife as forms of negotiated coexistence with human actors, allowing urban wildlife, activists, and policymakers to examine and eke out what biophilic urbanism means in their cities. There is a politics of biophilia because biophilia is political.

The UC framework (Figure 1) is outlined by two key considerations – infrastructures and regime factors. Infrastructures refer to sociotechnical formations that form structures of contact and interconnectedness (Amin & Thrift, 2017; Barua, 2021), connecting relations between things as they are things themselves (Larkin, 2013). They scaffold everyday urbanism by materializing the political, social, and cultural connections and structuring urban realities (McFarlane & Silver, 2017). UC highlights three forms of infrastructure: cultural, policy, and territorial. Cultural infrastructures refer to popular public perceptions of animals' presence and implications of such. Policy infrastructures refer to legislation, policies, and enforcement that inform urban wildlife governance. Territorial infrastructures relate to animals' urban mobility as a biological and socio-spatial indication of boundaries. The biological aspects consider an animal's capacity to move across bio-terrains (crawl, swim, and fly), while socio-spatial aspects examine how animals are confined to or excluded from urban terrains, defined by boundaries. Examples include green spaces such as nature reserves, parks, or green corridors.

Regime factors refer to coalitions of urban actors pursuing political arrangements that define urban political orders (Mossberger & Stoker, 2001). They represent and pursue specific urban wildlife interests in tandem with their organizational or regime goals

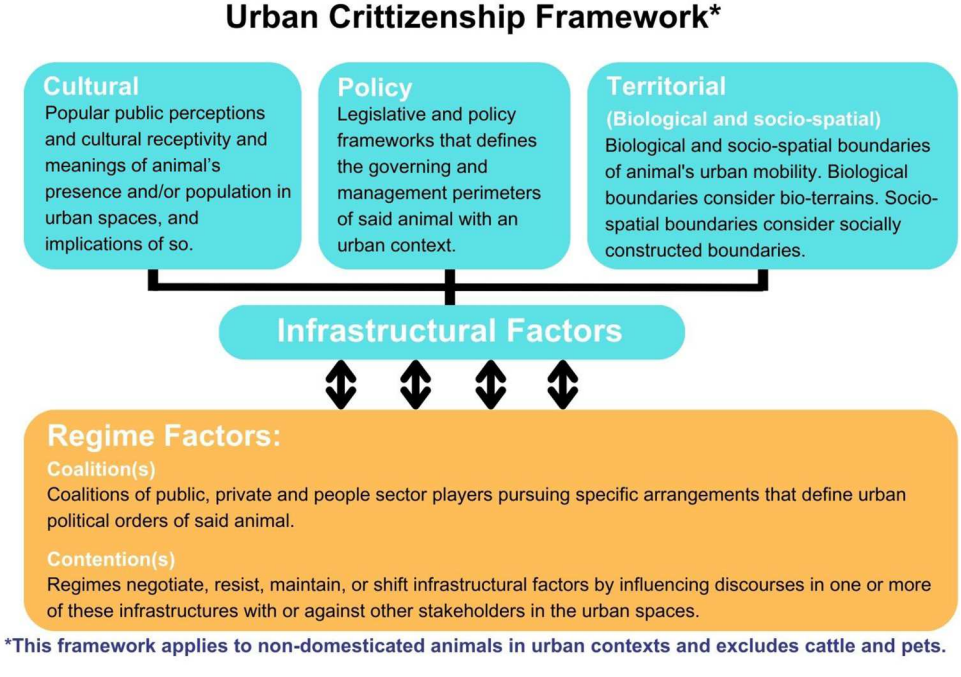

Figure 1 . Two parts within Urban Crittizenship (UC) Framework: Infrastructures and regime.

and are the forces that interact with infrastructural forces. Taken together, infrastructural and regime factors in UC provide the analytical considerations that define a political ontology of urban wildlife coexistence. In the results and discussion sections, I will present how UC inductively emerged out of analytically mapping Singapore's experience of urban fauna governance around three emic categories of urban animals: "residents," "wildlife," and "pests."

Methods

Data Collection

The study was conducted between 2018 and 2020, as part of the Nanyang Technological University's Institution Review Board (IRB)-approved ethnographic project on grassroots communities in Singapore, with permissions for fieldwork and interviews with relevant subjects. The fieldwork spanned over six neighborhoods and involved around 300 actors, including community leaders, residents, politicians, animal group activists, and local-level bureaucrats from public agencies in municipal politics in Singapore. They included the National Parks Board (NParks), the National Environmental Agency (NEA), the Public Utilities Board (PUB), and the Municipal Service Office (MSO).

The qualitative data were derived from field notes, interviews with street bureaucrats, community leaders, and residents, and accessible reports from public agencies, nature-based social organizations, and mainstream news platforms. In fieldwork, I joined informants and respondents in handling urban wildlife cases on the ground and conducted formal and informal discussions. I annotated interactions and conversations, which were later transcribed, coded, and processed into field reports. I also conducted street interviews with respondents during field visits, as well as five sessions of semi-structured interviews (Trinczek, 2009) with activists from nature-based advocacy groups for their insights on Singapore's urban wildlife governance. Further archival data from news articles and parliamentary documents were collected between 2021 and 2022 during which major legislative amendments to environmental protection were passed in Singapore (Lye, 2021; Tan, 2020). The data from archival research, fieldwork, and interviews were reassembled as aggregated data or findings for analytical coding purposes. All identifiable data were anonymized for this paper.

Results

Urban Crittizenship in Singapore: Residents, Wildlife, and Pests

Cumulatively mapping the findings from Singapore's governance of urban fauna coexistence, three explicit categories of urban animals emerged from the data: "resident," "wildlife," and "pest" (Figure 2). Pets and livestock were excluded as they were not considered "urban wildlife" within Singapore's policy infrastructures, with pets being incorporated under Singapore's Animals and Birds Act. Urban animals are incorporated under Singapore's Wildlife Act, Singapore's apex policy for urban wildlife management that includes/excludes urban animals from state protections. The categories "wildlife" and "pests" are derived from the Wildlife Act. "Resident" urban animals, on the other hand,

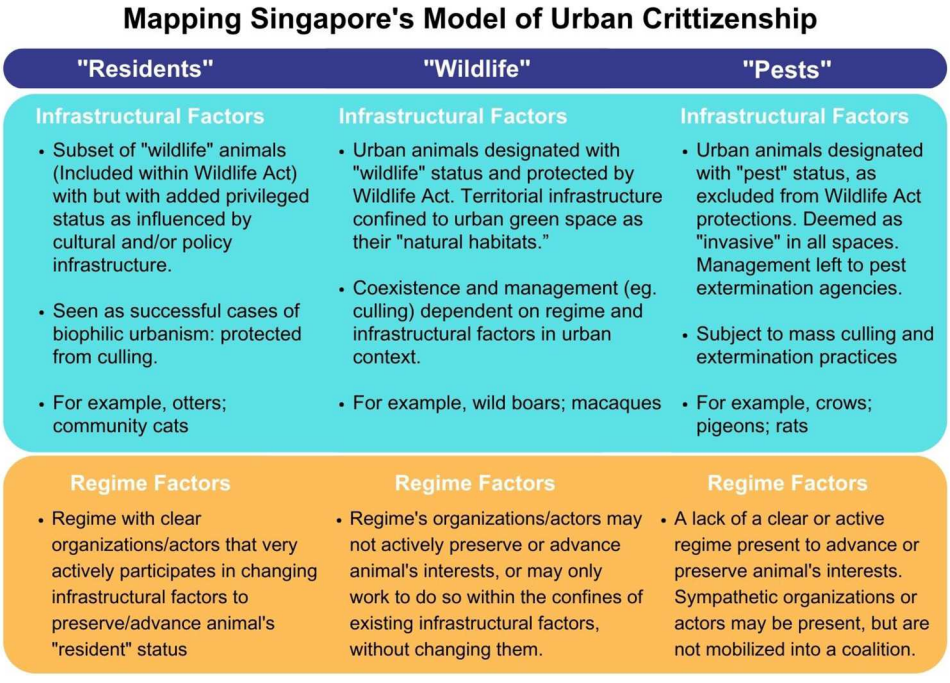

Figure 2 . Singapore's model of Urban Crittizenship.

are derived from colloquial usage by local agencies and activists to denote subsets of wildlife animals that are managed differently owing to specific cultural infrastructures or regime factors enabling so. These categories were used by the urban stakeholders to classify and identify broad means of engagement with urban wildlife.

Apart from categorical differences, an explicit hierarchy exists. "Resident" animals top the list, their status is privileged through special, exclusive, or favorable recognition that sets them apart from other urban wildlife. Resident animals' mobility is often unrestricted in urban spaces, with special conservation statuses. The main distinction between "resident" urban wildlife from other wildlife is that the former are touted by human actors as model cases of biophilic urbanism. Next are "wildlife" urban animals, whose mobility and presence are designated to urban green space as natural habitats. These designations may contradict ground experiences as these animals frequently encounter human actors in shared urban spaces. While "wildlife" animals have protections, it is limited to their habitats. Beyond these spaces, "wildlife" animals are deemed as intruders. Lastly are urban animals known as "pests." As the term suggests, they are considered an invasive nuisance or public health threat in urban settings (Biehler, 2013). Unlike "residents" or "wildlife," "pests" are ontologically defined by their state of exception (Agamben, 2005) of constant non-belonging in urban settings, even as they constitute an integral part of urban ecologies (Feng & Himsworth, 2014). Pests are subjected to extermination as part of urban sanitation management.

Using the cases of smooth-coated otters, boars, and pigeons in Singapore, I discuss these species as "ideal types" (Weber, 1949) delineating analytical differences among

"resident," "wildlife," and "pest" categories, respectively. As ideal types, these species provide an analytical framework to distinguish differences within Singapore's model of urban crittizenship, acknowledging that many urban animals fall into mixed continuums across these categories, and their positions may be constantly in flux as infrastructural and regime factors shift (Eliaeson, 2000).

Otters as "Residents"

Among "resident" urban wildlife examples in Singapore, few can match the success of smooth-coated otters (*Lutrogale perspicillata)* (Khoo & Lee, 2020). Otters were absent during the 1960s–1990s owing to Singapore's rapid urbanization. This led to canalized aquatic waterways and reduced wetland areas, which affected otters' survivability (Theng & Sivasothi, 2016). Since renewed sightings of them in the late 1990s, otters have been increasingly associated with Singapore's biophilic urbanism. Otters' reputation hit a new peak when they emerged as Singapore's 51st national icon by popular vote (Lee, 2016). Since then, otters have remained a staple in the nation's iconography, cumulating in what Kim (2020) characterized as "lovable lutrines" in "ottercity" Singapore. This cemented their role as ambassadors of Singapore's biophilic urbanism (Khoo & Lee, 2002; Tan, 2021). Public enthusiasm for otters is not homogeneous, however, as incidents of otters trespassing residential areas, killing ornamental fishes, and biting humans rose (Lopes, 2021). These incidents, however, did little to dent otters' celebrity status.

The smooth-coated otters' experience as residents is dependent on favorable infrastructural and regime factors. On the infrastructural front, while otters have a charismatic image that bolstered likeability (Duplaix & Savage, 2018), their rise as cultural icons is attributed to early associations with Singapore's successful biophilic projects. One example is the 62-hectare Bishan Park with de-concretized canal networks (NParks, 2022), where otters are allowed by public agencies to roam. Otters also received a massive national following when the NParks released pictures of sightings of them as part of public campaigns to showcase urban wildlife integration into their parks.

The legislative framework through the revised Wildlife Act in 2020 is also monumental. It criminalizes trapping, keeping, or killing otters, along with stricter and regular enforcement by state agencies. Another key piece of legislation is the Wildlife (Protection Wildlife Species) Rules 2020, which categorizes otters as a protected species. Apart from animal protection, improvements in public environment laws and increased greening policies through Singapore's Green Plans also led to improved pollution management (Tortajada & Joshi, 2014), effectively widening otters' urban habitat spaces. Coupled with the opportunistic feeding nature of otters (Theng et al., 2016) and amphibious characteristics, this drove the proliferation of otter families across Singapore as they freely roamed around the city's urban environment waterways and nature corridors.

Beyond infrastructures, another critical success point is the highly established regime factor in the form of the Otter Working Group (OWG). Founded in 2016, the OWG includes Singapore's leading environmental agencies, such as the National Parks Board (NParks), the Public Utilities Board (PUB), and the Agri-Food and Veterinary Authority of Singapore (AVS), which administered over public enforcement and protection of otters. The group also gets support from conservation groups, including the Animal Concerns Research

and Education Society (ACRES) and the Mandai Wildlife Group (MWG). More importantly, the OWG is driven by a committed change agent, OtterWatch, a volunteer group focusing on community research and public education about otter–human interactions. The group is an alignment and goal-orientating agent in bringing the different partners in the regime to a consensus. The OtterWatch was pivotal in spearheading the OWG toward public education to encourage safe and responsible human–otter interactions. One example was in successfully resisting public pressure on environmental agencies to cull otters because of biting incidents (Low, 2021). Therefore, the OWG became a driving force in making Singapore ecologically hospitable for otters by adequately securing their "resident" urban wildlife status.

Wild Boar as "Wildlife"

Wild boars (*Sus scrofa)* are native to the island. They are protected under the Wildlife Act; they are not included under the protected species schedule. They are therefore classified as common "wildlife" animals under the state's wildlife management and are included in culling practices when the situation is called for. Such treatments highlight the corporeal precarity of anthropocentric ecologies subjected to wildlife under the purview of the state. Another major difference is the cultural receptivity and spatial designation of wild boars in Singapore. Human–boar interactions in Singapore's urban settings are typically framed as dangerous (Lee, 2022; Neogy, 2021). Wild boars have lived in conserved areas such as nature parks, but as public housing estates inched closer to the edges of these areas, the closing distance between residential and natural spaces meant that boars frequently crossed into residential spaces in search of food in public waste facilities (Abdullah, 2022). This was so in recent cases in Punggol, Yishun, and Zhenghua areas (Iau & Sundar, 2021; Soh, 2022a; Sun, 2022). Boars' crossings into built environments are seen by residents as aberrations of the latter's "natural" activities even as they are increasingly sighted elsewhere (Castillo-Contreras et al., 2018; Hosaka et al., 2017; Jansen et al., 2007). The main issue, however, is that boars are "wildlife" animals strictly limited to "natural" spaces; such "crossings" violate territorial boundaries set by environmental agencies and public expectations, leaving wild boars vulnerable to culling when crossings occur.

One example was an incident where a boar was euthanized after a week-long hunt in Yishun in March 2022, which left the public polarized (Lim, 2022). Online critics proposed that the boar could have been relocated as in previous cases. Other residents I interviewed, however, concurred with the culling due to the threat it posed to local communities. This case reflects the ambiguity in boar management when crossings occur, which includes culling, habit modification, and relocation efforts (Soh, 2022b). The choice of actions would be largely motivated by signals from cultural infrastructures to devise politically expedient decisions to manage public expectations. State agencies shared that they were often faulted for not doing enough or going to extremes; sometimes both. One major reason is because of weak mobilization from regime actors managing wild boars' urban coexistence.

Unlike the case of OWG for otters, wild boars in Singapore lack similar regime support and change agents in pursuing boar-specific urban coexistence. Instead, the current regime consists of general conservation groups such as the Nature Society, Singapore

(NSS) and the Animal Concerns Research & Education Society (ACRES). These groups often are not significantly motivated to protect wild boars beyond their organizational goals. For instance, in a position paper in response to NPark's culling of wild boars in the Lower Pierce area in 2012 (Feng, 2014), the NSS supported NPark's ecological assessment of culling (NSS, 2012). Similarly, despite providing advice to mainstream media outlets, ACRES refrained from suggesting alternative urban management goals for wild boars beyond promoting established practices by state agencies. Hence, the precarity of boars' coexistence as "wildlife" is often predicated by human-centric shifts in infrastructural factors and unaligned regime actors with little interest in resisting these shifts, even though it means certain death for boars. This results in situations where state agencies rely on politically expedient decisions as the way forward.

Pigeons as "Pests"

Despite protections accorded by the Wildlife Act to urban wildlife in Singapore, *Columba livia,* better known as the feral pigeon, is excluded owing to its status as a "pest." This exclusion was driven by state agencies determining feral pigeons as a public hygiene problem (Loo, 2022). Its status was derived through legal infrastructures under the Wildlife (Exemption) Order 2020, which classified pigeons alongside rats and cockroaches. Owing to exemptions, pigeon enforcement falls under the purview of management bodies based on urban jurisdictions. These include the NParks and NEA, which manage commercial spaces and private housing estates, while municipal bodies such as Town Councils manage public housing estates. These bodies vary, however, in fauna management. For instance, despite phasing out toxin pellets used in culling pigeons by NParks and NEA, some Town Councils continue to do so (Rei, 2021).

The legal infrastructure is also often at odds with the public's acceptance of pigeons as wildlife. One such example is pigeon feeding. Despite public education and heavy penalties, pigeon feeding remains a persistent behavior among residents. Findings from interviews with Town Council property officers revealed that residents who feed pigeons do not view them as pests. Rather, they consider pigeons in a similar vein to other urban wildlife, such as cats or otters. A growing community of animal rights activists has also voiced concerns about inhumane pigeon management. In a 2019 social media post, ACRES lambasted the Aljunied-Hougang Town Council for "outright cruelty" by poisoning pigeons and disposing of them in trash bags while they were still alive (Seah, 2019). The post received a massive public outcry in support of ACRES (Tan, 2019). These instances point to a growing cultural consciousness of pigeons as "wildlife" instead of "pests." It also reveals the dissonance between policy and cultural infrastructural factors in pigeon management. This led to one interviewed public enforcement officer confessing that pigeons are Singapore's "unkillable pests."

Regime-wise, pigeon management is relegated to different urban agencies. Within bureaucratic organizations such as NParks and NEA, the focus is on phasing out culling and instead relocating pigeons to greenfield sites (Co, 2020). In residential areas under Town Councils management, the regime consists of the Members of Parliaments (MPs) and appointed Town Councilors, and their responses to pigeon management are deeply influenced by constituents' expectations and satisfaction. Interviews with Town

Council representatives indicate that trapping and relocation efforts were used when they faced pressures to eliminate culling practices. In estates with little opposition to culling, these practices remained. In both instances, the expressed sentiments of residents, grassroots community leaders, and local animal activists are significant in shifting town councils' pigeon management. These findings further suggest that shifts toward non-culling practices are likely to be adopted in town councils where informed urban wildlife management is perceived by residents and community leaders as an important indicator of township management.

Discussion

Consolidating the findings, three key discussion areas are noted. Firstly, all three examples highlight the critical roles infrastructures play in structuring the conditions of urban coexistence. In Singapore's case, the policy infrastructure, through the Wildlife Act, initiated the basic classifications between "wildlife" and "pests," the former receiving protections confined to green spaces, while the latter is excluded. A subsequent addendum, Wildlife Rules 2020, further delineated specific "wildlife" animals as "protected," elevating their status. These instances reveal how policy infrastructures are instrumental in classifying urban animals into specific urban ecologies (Barua & Sinha, 2023). Meanwhile, cultural infrastructures contributed toward influencing public discourses in reconfiguring public attention to practices of co/non-existence. Singapore's territorial infrastructures revealed the heterotopicness of urban animals' spaces. For "residents" such as otters, Singapore's City in Nature discourse renders the island city accessible and inclusive. For "wildlife" such as wild boars, the city is discursively spatialized between "built" and "natural" environments, and boars are treated as incursive species when they cross into the former, even as the built environment continues to encroach into their habitat spaces. For "pests," the urban landscape is seen as spaces of exception, where non-presence is barely tolerated and presence is responded to with extermination.

These findings reiterate the roles infrastructures play in mediating the biopolitics and necropolitics of urban ecologies. In biopolitics, infrastructures scaffold the ecological accessibility, boundaries, and practices of coexistence between urban animals and people, influencing encounters and conflicts in everyday urbanism (Yeo & Neo, 2010). By extending beyond formal policies, UC emphasizes how informal infrastructures, set within cultural and territorial dimensions, inform a plethora of human–wildlife urban interactions beyond what is spelled out in policy infrastructures (Narayanan, 2017; Srinivasan, 2015, 2019). UC highlights the primacy of analyzing infrastructures not as coherent wholes but as differentiated, sometimes even competing, structures that scaffold trajectories of urban biopolitics in a multiplicity of engagements with urban wildlife (Narayanan, 2021; Narayanan & Sumanth, 2019). As structures of necropolitics, defined as powers subjugating differentiated deservedness of who gets to live or die (Mbembe, 2006), infrastructures demarcate urban spaces into "death zones," territories of exclusion that define differentiated visceral and symbolic strategies of violence such as culling of some urban animals (von Essen & Redmalm, 2023). Thus, infrastructures become the operative mechanism that transforms urban spaces into unintentional landscapes (Gandy,

2016) where biophilic urbanism rests beside epistemic violence and corporeal vulnerability, as the right to the city becomes a question of life and death for urban animals.

Beyond infrastructures, Singapore's case highlights how regimes play crucial roles in advancing urban coexistence in tandem with infrastructures. In the context of otters, the Otter Working Group and OtterWatch are key examples that establish a supportive regime that secures otters' identities as successful cases of biophilic urbanism. By promoting otters as compatible with Singapore's City in Nature, and resisting calls to cull them, the otters' regime alignment with their welfare sustains the privileged status of the latter in Singapore.

Conversely, unaligned regime actors in the wild boars' and pigeons' cases subject both to the whims of infrastructural forces, manifesting as culling exercises and other practices of non-coexistence when urban contexts work against these animals. More poignantly, the wild boar cases highlight the primacy of commitment regime actors possess in securing coexistence practices, as animal rights groups that represent wild boars with state agents are not invested in proposing alternative categories that would protect the latter. Likewise, the low priorities by regime actors to act in the interest of pigeon welfare make the latter escape the infrastructural violence through their label as pests.

The difference regime actors make is highlighted by two key considerations. Firstly, the presence of regime actors is a necessary but insufficient condition in advancing urban coexistence. Instead, aligned commitments among regime actors are the most critical in safeguarding urban animals from infrastructural factors that threaten their coexistence. Committed regimes also act as a buffer against infrastructural shifts. Secondly, the cases highlighted the primacy of agency that regime actors possess in producing distinctive differences in fauna governance. Simply put, regime actors do not just operate within the infrastructural boundaries they find themselves in. Instead, they can produce sufficient influence to create infrastructural changes by acting upon them. Regimes can therefore shape infrastructures based on their political goals, influencing discourses around how other urban stakeholders recognize coexistence with urban wildlife. This opens up the possibility for regime actors being complicit in existing infrastructural configurations, as well as focusing on regimes instead of infrastructures as critical agents to mobilize effective change.

Finally, taken together, both infrastructural and regime factors frame the conceptual contours of UC, clarifying how urban coexistence is predicated upon specific sets of socio-political processes. It does so by situating the infrastructural and regime factors as crucial in anticipating different modes of biophilic relations. As the cases of otters, boars, and pigeons depict, their urban ecologies are embedded within specific infrastructural and regime configurations that reveal differentiated rhetoric and practices of inclusion or exclusions (Wolch & Emel, 1998). The implication of applying UC in interrogating fauna coexistence in biophilic urbanism is twofold.

Firstly, UC paradigmatically shifts denizenship beyond ethical ontology by acknowledging how denizens' rights to the city are already enmeshed in urban realpolitik (Shingne, 2020). Advancements in coexistence must therefore be centered on the politics, rather than ethics, of biophilia. UC does so by cautioning against oversimplified views of biophilic urbanism as welcoming nature back into urban communities (Beatley, 2009) or a love for nature in urban life (Wilson, 1984). Instead, biophilic coexistence is predicated upon

making human–animal relations legible through infrastructural and political arrangements of sharing urban spaces (Catriona & Stoljar, 2000). By unpacking the infrastructural and regime factors that secure such rights, UC compels us to consider already-existing urban coexistence beyond political rhetoric. It is precisely in doing so that we can trace the infrastructures and politics that scaffold anthropocentric-privileged forms of biophilic urbanism, along with the risks, violence, vulnerabilities, and politics it poses for human and nonhumans (Perry et al., 2020). Concurring with calls to re-politicize the urban ecological episteme (Barua, 2021), UC allows us to interrogate how we might reconcile denizenships, not just in physical urban settings, but also in epistemic frames such as biophilic urbanism to unpack what it means to forge trans-species urban relations and encounters (Hubbard & Brooks, 2021; Wolch, 2017).

Additionally, UC contributes to discussions that point to uneven dependencies urban wildlife has on human actors for urban coexistence, as most cities are designed to privilege anthropocenic interdependencies (Massey, 2014). Thus, the idea that biophilic urbanism automatically secures urban wildlife's wellbeing requires further scrutiny. But it needs to be done in ways that open lived experiences to inform conceptual categories of denizenship, not the other way around. Here, UC incorporates and extends what Barua and Sinha (2023) termed as "ecological formations" by de-situating their conceptual modes to allow for lived urban experiences to inform grounded emic urban ecologies. By unpacking Singapore's experiences through the emic categories of "residents," "wildlife," and "pests," this paper highlights how UC privileges urban actors' lived experiences that make emic urban ecological formations legible. In the same spirit of mapping the urban as ecological formations, UC offers the possibility of uncovering new political ontologies beyond the theoretical straitjacketing of cultivated, feral, and wild ecologies (Barua & Sinha, 2023) to advance an emic study of urban ecologies and their lived realities within and across cities (Collins et al., 2021).

Conclusion

In this paper, I introduced the concept of Urban Crittizenship (UC) as a summative framework to interrogate the urban ecologies of biophilic urbanism and the impacts on animals' rights to/in the city as political ontology. Inductively deriving UC using Singapore's experience, I delved into how otters, boars, and pigeons are categorized as "resident," "wildlife," and "pest" through infrastructural and regime configurations. In doing so, I argue that biophilic urbanism entailed already-existing political processes that mediate relations of coexistence with urban wildlife. This paper also challenges the conventions around urban wildlife coexistence, reiterating that we need to stop viewing urban wildlife as exempt from urban politics but frame our conversations alongside infrastructural and regime factors that mediate and secure urban wildlife's coexistence.

Acknowledgements

The author thanks members of the workshop hosted by the Asia Research Institute (ARI) titled "Green Cities Beyond Failure: Toward Hopeful Epistemologies of Ecological Urban Futures in Asia" for their insightful suggestions, as well as the opportunity to present a working version of

the paper on 4 August 2022. The author also thanks the two anonymous reviewers and Editor-in-Chief Dr. Anthony L Podberscek of Anthrozoös for their constructive feedback.

Disclosure Statement

No potential conflict of interest was reported by the author.

ORCID

George Wong http://orcid.org/0000-0001-6333-8429

References

Abdullah, Z. A. (2022, February 17). Food waste left outside rubbish bins attracting wild boars to Bukit Panjang, says animal group. *ChannelNewsAsia*. https://www.channelnewsasia.com/singapore/food-waste-outside-rubbish-bins-attracting-wild-boars-bukit-panjang-acres-2504366

Adams, L. W. (2005). Urban wildlife ecology and conservation: A brief history of the discipline. *Urban Ecosystems*, *8*(2), 139–156. https://doi.org/10.1007/s11252-005-4377-7

Agamben, G. (2005). *State of exception*. University of Chicago Press.

Amin, A., & Thrift, N. (2017). *Seeing like a city*. Polity Press.

Barua, M. (2021). Infrastructure and non-human life: A wider ontology. *Progress in Human Geography*, *45*(6), 1467–1489. https://doi.org/10.1177/0309132521991220

Barua, M., & Sinha, A. (2023). Cultivated, feral, wild: The urban as an ecological formation. *Urban Geography*, *44*(10), 2206–2227. https://doi.org/10.1080/02723638.2022.2055924

Beatley, T. (2009). Biophilic urbanism: Inviting nature back to our communities and into our lives. *William & Mary Environmental Law and Policy Review*, *34*(1), 209–238.

Beatley, T. (2011). *Biophilic cities: Integrating nature into urban design and planning*. Island Press.

Beatley, T. (2016). Singapore city, Singapore: City in a garden. In T. Beatley (Ed.), *Handbook of biophilic city planning and design* (pp. 51–66). Island Press.

Beatley, T., & Newman, P. (2013). Biophilic cities are sustainable, resilient cities. *Sustainability*, *5*(8), 3328–3345. https://doi.org/10.3390/su5083328

Benton, T. (1993). *Natural relations: Ecology, animal rights, and social justice*. Verso.

Biehler, D. D. (2013). *Pest in the city: Flies, bedbugs, cockroaches, and rats*. University of Washington Press.

Briffett, C., Kong, L., Yuen, B., & Sodhi, N. (1999). *Nature in urban areas: The planning and ecology of green corridor systems in Singapore*. National University of Singapore Press.

Castillo-Contreras, R., Carvalho, J., Serrano, E., Mentaberre, G., Fernández-Aguilar, X., Colom, A., Gonzalez-Crespo, C., Lavin, S., & López-Olvera, J. R. (2018). Urban wild boars prefer fragmented areas with food resources near natural corridors. *Science of the Total Environment*, *615*, 282–288. https://doi.org/10.1016/j.scitotenv.2017.09.277

Catriona, M., & Stoljar, N. (Eds.) (2000). *Relational autonomy: Feminist perspectives on autonomy, agency, and the social self*. Oxford University Press.

Clark, B. (2003). Ebenezer Howard and the marriage of town and country: An introduction to Howard's garden cities of tomorrow (Selections). *Organization & Environment*, *16*(1), 87–97. https://doi.org/10.1177/1086026602250258

Co, C. (2020, April 18). Need to understand motivations to counter persistent pigeon feeders: NParks. *ChannelNewsAsia*. https://www.channelnewsasia.com/singapore/need-understand-motivations-counter-persistent-pigeon-feeders-nparks-763141

Collins, M. K., Magle, S. B., & Gallo, T. (2021). Global trends in urban wildlife ecology and conservation. *Biological Conservation*, *261*, 109236. https://doi.org/10.1016/j.biocon.2021.109236

Concepción, E. D., Moretti, M., Altermatt, F., Nobis, M. P., & Obrist, M. K. (2015). Impacts of urbanization on biodiversity: The role of species mobility, degree of specialization and spatial scale. *Oikos*, *124*(12), 1571–1582. https://doi.org/10.1111/oik.02166

Coppock, C. (1879). Distribution of the black rat. *Nature*, *20*(507), 266. https://doi.org/10.1038/020266e0

Davies, R. G., Webber, L. M., & Barnes, G. S. (2004). Urban wildlife management – It's as much about people. In D. Lunny, & S. Burgin (Eds.), *Urban wildlife: More than meets the eye* (pp. 38–43). Royal Zoological Society of New South Wales.

Donaldson, S., & Kymlicka, W. (2011). *Zoopolis: A political theory of animal rights*. Oxford University Press.

Duplaix, N., & Savage, M. (2018). The global otter conservation strategy. *IUCN/SSC Otter Specialist Group*. https://www.otterspecialistgroup.org/osg-newsite/wp-content/uploads/2018/12/IUCN-Otter-Report-DEC%2012%20final_small.pdf

Edmundson, W. (2015). Do animals need rights? *The Journal of Political Philosophy*, *23*(3), 345–360. https://doi.org/10.1111/jopp.12042

Elden, S. (2021). Terrain, politics, history. *Dialogues in Human Geography*, *11*(2), 170–189. https://doi.org/10.1177/2043820620951353

Eldridge, S. (1900). Japan: Plague in Japan from July 1 to September 15, 1900. *Public Health Reports (1896–1970)*, *15*(44), 2717–2719.

Eliaeson, S. (2000). Max Weber's methodology: An ideal-type. *Journal of the History of the Behavioral Sciences*, *36*(3), 241–263. https://doi.org/10.1002/1520-6696(200022)36:3<241::AID-JHBS3>3.0.CO;2-C

Evans, R. E. J. (2003). *Garden cities revisited: Sustainable design. Past, present, future* [Doctoral dissertation]. Illinois Institute of Technology. ProQuest Dissertations Publishing, 3117121.

Feng, A. Y., & Himsworth, C. G. (2014). The secret life of the city rat: A review of the ecology of urban Norway and black rats (*Rattus norvegicus* and *Rattus rattus*). *Urban Ecosystems*, *17*(1), 149–162. https://doi.org/10.1007/s11252-013-0305-4

Feng, Z. (2014, July 29). About 80 wild boars in Lower Peirce are culled. *The Straits Times*. https://www.straitstimes.com/singapore/environment/about-80-wild-boars-in-lower-peirce-area-culled

Gandy, M. (2016). Unintentional landscapes. *Landscape Research*, *41*(4), 433–440. https://doi.org/10.1080/01426397.2016.1156069

Hosaka, T., Sugimoto, K., & Numata, S. (2017). Effects of childhood experience with nature on tolerance of urban residents toward hornets and wild boars in Japan. *PLoS ONE*, *12*(4), e0175243. https://doi.org/10.1371/journal.pone.0175243

Hovorka, A. (2008). Transspecies urban theory: Chickens in an African city. *Cultural Geographies*, *15*(1), 95–117. https://doi.org/10.1177/1474474007085784

Hubbard, P., & Brooks, A. (2021). Animals and urban gentrification: Displacement and injustice in the trans-species city. *Progress in Human Geography*, *45*(6), 1490–1511. https://doi.org/10.1177/0309132520986221

Iau, J., & Sundar, D. (2021, February 23). Punggol residents shocked after 2 wild boar attacks in a night. *The Straits Times*. https://www.straitstimes.com/singapore/environment/two-wild-boar-attacks-in-a-night-shock-punggol-residents

Jansen, A., Luge, E., Guerra, B., Wittschen, P., Gruber, A. D., Loddenkemper, C., & Nöckler, K. (2007). Leptospirosis in urban wild boars, Berlin, Germany. *Emerging Infectious Diseases*, *13*(5), 739–742. https://doi.org/10.3201/eid1305.061302

Jerolmack, C. (2008). How pigeons became rats: The cultural-spatial logic of problem animals. *Social Problems*, *55*(1), 72–94. https://doi.org/10.1525/sp.2008.55.1.72

Kellert, S. R., Heerwagen, J., & Mador, M. (2011). *Biophilic design: The theory, science, and practice of bringing buildings to life*. John Wiley & Sons.

Khoo, M. D. Y., & Lee, B. H. (2020). The urban smooth-coated otters *Lutrogale perspicillata* of Singapore: A review of the reasons for success. *International Zoo Yearbook*, *54*(1), 60–71. https://doi.org/10.1111/izy.12262

Kim, H. M. (2020). Loveable lutrines: Curated nature and environmental migrants in the Ottercity. In M. Schneider-Mayerson (Ed.), *Eating chili crab in the Anthropocene: Environmental perspectives on life in Singapore* (pp. 241–268). Ethos Book.

König, H. J., Kiffner, C., Kramer-Schadt, S., Fürst, C., Keuling, O., & Ford, A. T. (2020). Human–wildlife coexistence in a changing world. *Conservation Biology*, *34*(4), 786–794. https://doi.org/10.1111/cobi.13513

Kymlicka, W., & Donaldson, S. (2014). Animal rights, multiculturalism, and the left. *Journal of Social Philosophy*, *45*(1), 116–135. https://doi.org/10.1111/josp.12047

Larkin, B. (2013). The politics and poetics of infrastructure. *Annual Review of Anthropology*, *42*(1), 327–343. https://doi.org/10.1146/annurev-anthro-092412-155522

Lee, L. (2022, March 10). Wild boar injures woman near Yishun housing block. *Today*. https://www.todayonline.com/singapore/wild-boar-injures-woman-near-yishun-housing-block-1842841

Lee, M. K. (2016, August 7). ST readers choose Bishan otters to represent Singapore in her 51st year. *The Straits Times*. https://www.straitstimes.com/singapore/st-readers-choose-bishan-otters-to-represent-singapore-in-her-51st-year

Leedy, D. L., & Adams, L. W. (1984). *A guide to urban wildlife management*. National Institute for Urban Wildlife.

Lefebvre, H. (1996). The right to the city. In E. Kofman & E. Lebas (Eds.), *Writings on cities* (pp. 147–159). Wiley-Blackwell.

Lim, K. (2022, March 26). Wild boar in Yishun incident euthanized as "last resort", NParks says. *Today*. https://www.todayonline.com/singapore/wild-boar-yishun-incident-euthanised-last-resort-nparks-says-1855426

Loo, A. (2022, April 8). Forum: NParks takes a science-based approach to managing invasive species, pigeon feeding. *The Straits Times*. https://www.straitstimes.com/opinion/forum/forum-nparks-takes-science-based-approach-to-managing-invasive-species-pigeon-feeding

Lopes, M. (2021, October 22). Otters are taking over Singapore. *The Washington Post*. https://www.washingtonpost.com/world/asia_pacific/singapore-otters-wildlife/2021/10/22/9e85c3ac-2afd-11ec-b17d-985c186de338_story.html

Low, Y. (2021, December 9). Otter population up sharply but still manageable, say experts who urge public to learn to co-exist with them. *Today Online*. https://www.todayonline.com/singapore/otter-population-sharply-still-manageable-say-experts-who-urge-public-learn-co-exist-them-1767076

Lye, L. H. (2021). *Environmental law in Singapore* (2nd ed.). Kluwer Law International B.V.

Magle, S. B., Hunt, V. M., Vernon, M., & Crooks, K. R. (2012). Urban wildlife research: Past, present, and future. *Biological Conservation*, *155*, 23–32. https://doi.org/10.1016/j.biocon.2012.06.018

Massey, D. (2014). Taking on the world. *Geography (Sheffield, England)*, *99*(1), 36–39. https://doi.org/10.1080/00167487.2014.12094389

Mbembe, A. (2006). Necropolitics. *Raisons Politiques*, *21*(1), 29–60. https://doi.org/10.3917/rai.021.0029

McFarlane, C., & Silver, J. (2017). Navigating the city: Dialectics of everyday urbanism. *Transactions of the Institute of British Geographers*, *42*(3), 458–471. https://doi.org/10.1111/tran.12175

McPhearson, T., Pickett, S. T. A., Grimm, N. B., Niemelä, J., Alberti, M., Elmqvist, T., Weber, C., Haase, D., Breuste, J., & Qureshi, S. (2016). Advancing urban ecology toward a science of cities. *BioScience*, *66*(3), 198–212. https://doi.org/10.1093/biosci/biw002

Mossberger, K., & Stoker, G. (2001). The evolution of urban regime theory: The challenge of conceptualization. *Urban Affairs Review*, *36*(6), 810–835. https://doi.org/10.1177/10780870122185109

Narayanan, Y. (2017). Street dogs at the intersection of colonialism and informality: "Subaltern animism" as a posthuman critique of Indian cities. *Environment and Planning D: Society and Space*, *35*(3), 475–494. https://doi.org/10.1177/0263775816672860

Narayanan, Y. (2021). Animating caste: Visceral geographies of pigs, caste and violent nationalisms in Chennai city. *Urban Geography*, *44*(10), 2185–2205. https://doi.org/10.1080/02723638.2021.1890954

Narayanan, Y., & Sumanth, B. (2019). "Posthuman cosmopolitanism" for the Anthropocene in India: Urbanism and human–snake relations in the Kali Yuga. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, *106*, 402–410. https://doi.org/10.1016/j.geoforum.2018.04.020

National Parks Board (NParks). (2022). *Singapore, a city in nature: Singapore greening journey*. https://www.nparks.gov.sg/about-us/city-in-nature

Nature Society (Singapore) (NSS). (2012). *Nature Society (Singapore)'s position paper on wild pigs in Singapore*. https://www.nss.org.sg/report/92a2f783-aWild%20Pigs%20in%20Singapore%20211012.pdf

Neogy, S. (2021). Wild boars wreak havoc in Singapore: Why you must educate your kids about it. *TheAsianParent*. https://sg.theasianparent.com/wild-boar-attack-singapore-on-the-rise-heres-why-you-need-to-educate-your-kids-about-it

Newman, P. (2010). Green urbanism and its application to Singapore. *Environment and Urbanization Asia*, *1*(2), 149–170. https://doi.org/10.1177/097542531000100204

Newman, P. (2014). Biophilic urbanism: A case study on Singapore. *Australian Planner*, *51*(1), 47–65. https://doi.org/10.1080/07293682.2013.790832

NParks. (2022). *Bishan-Ang Mo Kio Park*. https://www.nparks.gov.sg/gardens-parks-and-nature/parks-and-nature-reserves/bishan—ang-mo-kio-park

Perry, G., Boal, C., Verble, R., & Wallace, M. (2020). Good" and "bad" urban wildlife. In F. M. Angelici & L. Rossi (Eds.), *Problematic wildlife II: New conservation and management challenges in the human–wildlife interactions* (pp. 141–170). Springer Nature.

Regan, T. (2004). *The case for animal rights*. University of California Press.

Rei, K. (2021, November 30). NParks working with town councils to stop use of poison in wildlife control measures. *The Straits Times*. https://www.straitstimes.com/singapore/politics/nparks-working-with-town-councils-to-stop-use-of-poison-in-wildlife-control

Roberts, D. C. (1994). The design of an urban open-space network for the city of Durban (South Africa). *Environmental Conservation*, *21*(1), 11–17. https://doi.org/10.1017/S0376892900024024

Ruff, A. R. (1987). *Holland and the ecological landscapes 1973–1987*. Delft University Press.

Seah, S. (2019, April 10). Video of pigeon culling in Hougang "an outright case of cruelty": Acres. *Today*. https://www.todayonline.com/singapore/video-pigeon-culling-hougang-outright-case-cruelty-acres

Shingne, M. C. (2020). The more-than-human right to the city: A multispecies re-evaluation. *Journal of Urban Affairs*, *44*(2), 1–19.

Soh, G. (2022a, March 21). Wild boar that injured woman in Yishun caught, "euthanized humanely". *The Straits Times*. https://www.straitstimes.com/singapore/environment/yishun-park-reopened-to-public-after-wild-boar-is-caught

Soh, G. (2022b, March 28). Euthanization of Yishun Park wild boar based on science: NParks. *The Straits Times*. https://www.straitstimes.com/singapore/environment/euthanisation-of-yishun-park-wild-boar-based-on-science-nparks

Srinivasan, K. (2015). The welfare episteme: Street dog biopolitics in the Anthropocene. In The Human Animal Research Network Editorial Collective (Ed.), *Animals in the Anthropocene: Critical perspectives on nonhuman futures* (pp. 201–221). Sydney University Press.

Srinivasan, K. (2019). Remaking more-than-human society: Thought experiments on street dogs as "nature". *Transactions of the Institute of British Geographers*, *44*(2), 376–391. https://doi.org/10.1111/tran.12291

Sun, D. (2022, March 15). Wild boars in Zhenghua estate raise safety concerns for children and elderly. *The Straits Times*. https://www.straitstimes.com/singapore/wild-boars-in-zhenghua-estate-raises-safety-concerns-for-children-and-elderly

Tabb, P. J. (2021). *Biophilic urbanism: Designing resilient communities for the future*. Routledge.

Tan, A. (2019, April 10). Video of Hougang pigeon culling shows dying poisoned pigeons stuffed alive into trash bags. *Mothership*. https://mothership.sg/2019/04/pigeon-culling-poisoned-trash-bags-hougang/

Tan, A. (2020, March 25). Parliament: More protection for native wildlife, harsher penalties for offenders under amended law. *The Straits Times*. https://www.straitstimes.com/politics/parliament-more-protection-for-native-wildlife-harsher-penalties-for-offenders-under

Tan, E. (2021). Wildlife tourism in urban destinations: Singapore's urban otters and "biodivercity" story. In J. Zhao, L. Ren, & X. Li (Eds.), *The hospitality and tourism industry in ASEAN and east Asian destinations* (pp. 209–228). Apple Academic Press.

Theng, M., & Sivasothi, N. (2016). The smooth-coated otter *Lutrogale perspicillata* (Mammalia Mustelidae) in Singapore: Establishment and expansion in natural and semi-urban environments. *IUCN Otter Specialist Group Bulletin*, *33*(1), 37–49.

Theng, M., Sivasothi, N., & Tan, H. H. (2016). Diet of the smooth-coated otter *Lutrogale perspicillata* (Geoffroy, 1826) at natural and modified sites in Singapore. *Raffles Bulletin of Zoology*, *64*, 290–301.

Tortajada, C., & Joshi, Y. K. (2014). Water quality management in Singapore: The role of institutions, laws and regulations. *Hydrological Sciences Journal*, *59*(9), 1763–1774. https://doi.org/10.1080/02626667.2014.942664

Trinczek, R. (2009). How to interview managers? Methodical and methodological aspects of expert interviews as a qualitative method in empirical social research. In A. Bogner, B. Littig, & W. Menz (Eds.), *Interviewing experts. Research methods series* (pp. 203–216). Palgrave Macmillan.

von Essen, E., & Redmalm, D. (2023). License to cull: A research agenda for investigating the necropolitics of countryside culling and urban pest control. *Society & Animals*. Advance online publication. https://doi.org/10.1163/15685306-bja10129

Weber, M. (1949). *The methodology of the social sciences*. Free Press.

Wilson, E. O. (1984). *Biophilia*. Harvard University Press.

Wittmann, K., Vaske, J. J., Manfredo, M. J., & Zinn, H. C. (1998). Standards for lethal response to problem urban wildlife. *Human Dimensions of Wildlife*, *3*(4), 29–48. https://doi.org/10.1080/10871209809359137

Wolch, J. (2017, November 16). Zoöpolis. *Verso*. https://www.versobooks.com/blogs/3487-zoopolis

Wolch, J., & Emel, J. (1998). *Animal geographies: Place, politics and identity in the nature–culture borderlands*. Verso Press.

Xue, F., Gou, Z., Lau, S. S. Y., Lau, S. K., Chung, K. H., & Zhang, J. (2019). From biophilic design to biophilic urbanism: Stakeholders' perspectives. *Journal of Cleaner Production*, *211*, 1444–1452. https://doi.org/10.1016/j.jclepro.2018.11.277

Yeo, J., & Neo, H. (2010). Monkey business: Human–animal conflicts in urban Singapore. *Social and Cultural Geography*, *11*(7), 681–699. https://doi.org/10.1080/14649365.2010.508565