



Pigs and the City

Urban greening requires a re-look at sharing space with animals and nature.

- 1 There are several challenges when balancing urban development with ecological sustainability, as seen in Singapore's struggles with human-wildlife interactions like wild boars entering populated areas.
- 2 Opinions on managing wildlife diverge between calls for stricter population control and concerns over habitat loss. This shows the need for balanced approaches that cater to both humans and ecology alike.
- 3 Cities like Houston, Barcelona, and Hong Kong offer different models for human-wildlife management, showing that local contexts shape approaches to achieving peaceful coexistence with urban wildlife.

In the early evening of March 9, 2022, a wild boar entered Housing & Development Board (HDB) Block 846, located in the Yishun area of north-central Singapore. Things did not go particularly well during the animal's short sojourn in the housing estate. Per eyewitnesses speaking to Singapore daily *The Straits Times*, the boar was about the size of a dog. It spent a brief period meandering through a crowded pedestrian area near a cluster of ground-floor shops before colliding forcefully with a woman, who fell to the ground and was knocked unconscious. Sprinting

away, the pig rammed into a nearby shop's glass window before absconding to a patch of forest in a local nature park.

Covered extensively in local English and Chinese-language media outlets, this incident is representative of a genre of human-boar encounter that has come to figure prominently in the island's public discourse. In short: pigs find their way into spaces inhabited by humans, then injuries and mayhem ensue. An expected coda often surfaces in the news a few days or weeks afterwards, as it did in this case: the pig is reported as "humanely euthanised" by

state agents, following a period of confinement in a nearby park.

Such incidents have been invoked to make divergent arguments about Singapore's landscape and the wild animals that inhabit it. Some claim that they signal a need for more aggressive animal population control tactics, to ensure the safety of the island's human residents. Others contend that they represent compelling evidence of excessive habitat encroachment caused by relentless development. While both positions have merit, a third, more open-ended assessment is perhaps most helpful in making sense of these encounters: they (and the heated conversations around them) illustrate some of the challenges and contradictions emerging from attempts to manage cities as urban ecosystems.

BUILDING NATURE: AN OXYMORON?

The phrase "urban ecosystem" may initially read like a contradictory label. Ecology, the scientific field dedicated to the study of ecosystems, is popularly associated with verdant, undeveloped landscapes, rather than spaces dominated by the glass of skyscrapers or the concrete of HDB blocks. To many, "city" and "nature" are understood as obvious opposites.

Yet despite the common sense of these two categories standing in binary opposition, there have long been attempts at a synthesis. In the world of urban design and planning, these took on a new visibility around the turn of the

20th century with the publication of Ebenezer Howard's *Garden Cities of To-morrow* (1902). Howard's utopian vision called for a rejection of the cramped, unhealthy urban form characteristic of Industrial Revolution-era England in favour of cities organised around parks and open spaces, all accessible to the working class and wealthy residents alike.

While perhaps unfamiliar with Howard's articulation of the concept, most Singaporeans likely know the term "garden city" from their national history classes in school. In 1967, the nation's founding Prime Minister Lee Kuan Yew declared his vision of developing Singapore into a "garden city", weaving greenery into the fabric of a rapidly urbanising landscape. At his behest, the nation invested in sustained programmes of tree planting and park development throughout the ensuing decades. The aesthetic and functional effects of these efforts are readily observable, visually reducing the height of the ubiquitous concrete high-rises and providing shade for pedestrians. Indeed, they have helped make Singapore a much-touted model of so-called green urbanisation, spawning explicit imitation in cities within and beyond Asia.

Notably, the Singaporean state has officially moved two re-brandings past Lee's much-touted "garden city" approach. In 1998, the National Parks Board (NParks) reframed its goal as developing a "City in a Garden", a phrase meant to signal the state's desire to incorporate nature directly into the lives of all Singaporeans.

With the release of the Singapore Green Plan 2030 in 2021, the agency shifted its goals once again, announcing the desire to transform the island into a "City in Nature". Reviewing that plan reveals many familiar goals and methods, among them tree planting and the expansion of land area dedicated to urban parks. But its language also signals a change in emphasis, highlighting its pursuit of greenery that serves functions beyond the visual and experiential.

In this sense, the plan reflects a rising tide of interest in urban landscapes. Grounded in a growing body of research that explores the complex ecological relations characteristic of such densely developed terrain, a growing number of urban planners see cities as environments that, with careful planning, can be managed to provide a wide range of valuable ecosystem services. These include purer air, cleaner streams, reduced flooding, enhanced biodiversity, and even carbon sequestration. In such a view, strategically cultivated urban nature emerges as foundational for a thriving metropolis.

For the past two decades, cities around the globe have been adopting plans intended to maximise the ecological benefits that urban nature might provide. China's widely touted "Sponge Cities" initiative—which proposes an approach to flood management that relies on nature-based infrastructures to direct storm runoff within urban areas—is among the most prominent examples of this tendency. In both popular discourse and urban planning scholarship,

such natural infrastructure projects are frequently framed as "win-win" undertakings that support both human and environmental flourishing.

But such efforts can enable unintentionally robust forms of flourishing—that is, they support the rapid expansion of wild animal populations within the urban fabric. Natural infrastructure projects at multiple scales have been shown to provide patches of habitat for species ranging from snakes to mosquitoes to macaques. Whether loved, loathed, or feared by their human neighbours, growing populations of such non-domesticated animals are thriving in metropolitan settings, thanks in part to urban greening initiatives. The growing recognition that many such species play valuable roles in the ecological fabric of urban environments further complicates questions of how best to pursue interspecies coexistence in these settings.

MANAGING WILDLIFE'S WILD LIVES

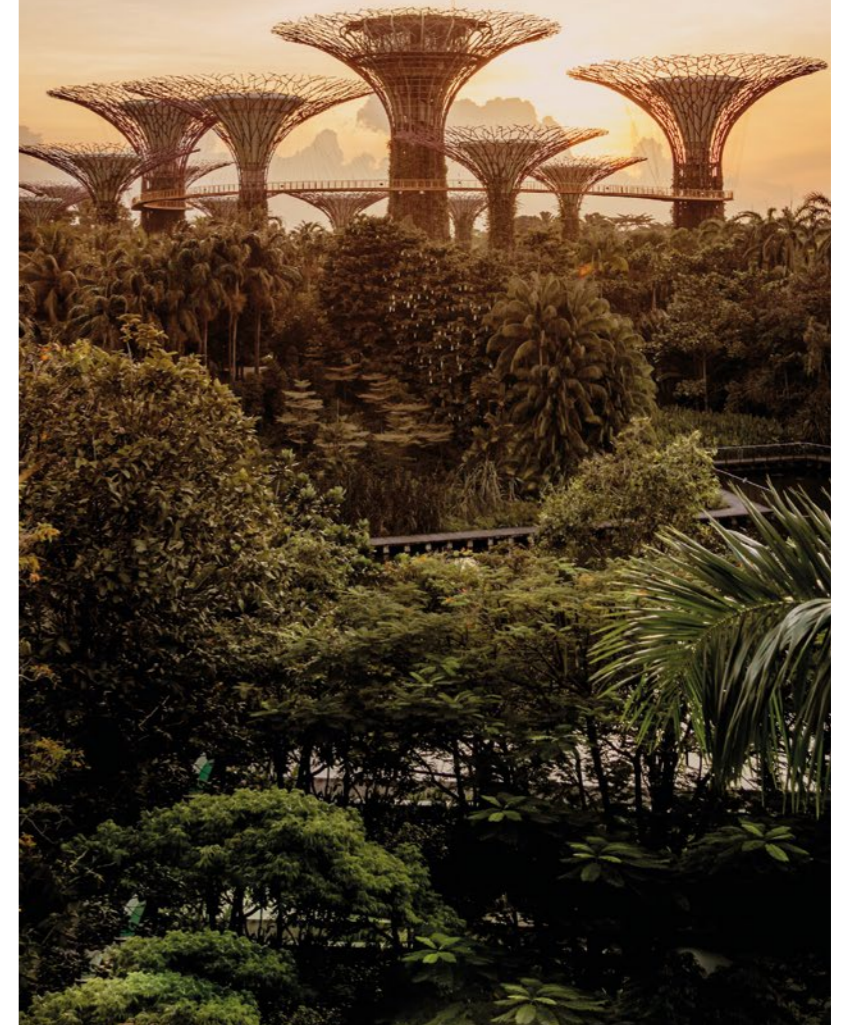
As the residents of HDB Block 846 can attest, nature—rural or urban, strategically planned or otherwise—is not always docile or predictable. And indeed, Singaporeans are familiar with many examples of unruly other-than-human co-residents across their island home. Visitors are regularly warned that local otters may be adorable but can attack viciously. Likewise, anyone who has hiked in the forests around MacRitchie Reservoir has likely been instructed to avoid eye contact with monkeys encountered

along the trails, which have no compunctions about stealing phones or food.

But wild boars (*sus scrofa*), a species native to the island, offer a particularly vivid case to consider the range of human-wildlife interactions emerging in tandem with government-led efforts to cultivate a "City in Nature". While thought to be extinct here for a period—primarily due to biodiversity surveys conducted in the Central Catchment Area in the 1990s that revealed no pig presence—by the 2000s, residents and ecologists alike were reporting boar sightings within the city's major nature reserves. The 2010s and early 2020s saw a growing number of human-pig encounters, the details of which were often breathlessly reported by local media outlets. A 2023 ecological study predicted that the species would fully "recolonise" the island within a few years.

Per ecologists, this isn't all bad news. A healthy population of wild boars can play a useful role in improving soil health and maintaining biodiversity. Their characteristic rooting practices help to break apart soil layers, enabling a wider range of plant species to thrive and create supportive environments for ground-nesting birds. But ecological problems can emerge when population of boars become too concentrated in a small land area, a common trajectory in cases where the species lack a natural predator—as in Singapore. Much of the popular concern around the species, however, focuses on the boars' complicated relationship with their human neighbours.

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Incidents like the 2022 Yishun encounter discussed above serve as a reminder of both the boars' undeniable agency, and officials' efforts to manage those capacities in the name of limiting violent run-ins and bodily harm to people. Notably, NParks officials frequently state that eliminating wild boars from the island is not possible, due to the animals' prolific breeding capacity and ability to enter Singapore by swimming from nearby islands. But the officials also detail ongoing efforts to better contain the animals within naturalised terrain, to prevent them from entering crowded areas like HDB blocks. For instance, in 2023 the agency reported the construction of exclusion fencing, cattle grids, and CCTV cameras in areas around Zhenghua Nature Park, following a pair of roadside boar attacks near the park's perimeter.

Furthermore, the agency has been conducting a protracted programme of culling oil palms, a favourite food source for boars, across the island, in the interest of limiting their population. In theory, eliminating the plants will mean boars must dedicate more time to foraging, leaving less time for mating.

Despite these efforts, it is likely that the most formidable force in limiting the number of boars on the island will not come from NParks. African swine fever (ASF), first reported in pigs in Singapore in early 2023, is predicted to cause a substantial dip in the local pig population. Even so, the agency's boar containment efforts continue apace, seeking to constrain the animals' capacity to venture into the parking lots, subway stations, and sidewalks where human-hog encounters have turned bloody.

Cities across the globe are actively grappling with the human-wildlife encounters that pursuing strategic programmes of urban greening can produce.



Yet while such incidents have garnered considerable press coverage and public discussion, a close examination of the media record reveals that physical danger, fear, and attempts at containment are not the whole story of human-hog relations. Singaporean human residents have also displayed notable forms of agentive unruliness around wild boars in recent years—gestures grounded, in most cases, in a staunch sense of affection and concern for the animals.

FEEDING TROUBLE

In January 2021, four Singaporeans pleaded guilty to a crime that carries a fine of up to S\$5,000 for a first offence: feeding wild boars. The members of the quartet were among a group of eight residents charged for offering food to pigs in Lorong Halus in the final months of 2020 under the recently tightened Wildlife Act. The four who submitted pleas in January each paid S\$2,500 to the state for their illegal offerings of bread and dog food.

These much-publicised charges—which were published in *The Straits Times* alongside photos of the individuals pleading—were not the first round of punishments doled out for feeding boars. In April 2020, which was during the COVID-19 circuit breaker period, a group of residents was fined after one posted a video of feeding a herd of roughly 20 boars; the footage subsequently went viral. Notably, many of the comments left on the video were encouraging, praising the “kind-hearted” men offering the food. In a similar vein,

a 2017 *The Straits Times* article recounts the reporter observing a middle-aged woman stopping her car near the Pasir Ris bus interchange to dump a large portion of rice and canned dog food on a nearby slope. Observing the gaggle of boars that appeared to consume the offering, the woman told the reporter that she had been feeding the pigs regularly for nearly a year. “All animals have the right to live,” she stated, suggesting that her motivation was grounded in a sustained concern for the boars' well-being.

To be clear, beyond its status as a forbidden activity under Singaporean law, feeding the wild boars is discouraged on the grounds of its effects on the boars' behaviour. NParks literature states repeatedly that feeding boars draws the animals into human-dominated spaces to seek more sustenance. In effect, the agency frames the act as one that pulls pigs from naturalised spaces into more obviously urbanised ones, seeding the violent encounters that many fear. Seeking to control such feeding practices, the agency reportedly ramped up its surveillance efforts following the viral videos from early 2020. Through fines, surveillance, and aggressive public messaging, NParks seeks to cultivate a particular sort of human-boar relationship: respectful, but distant.

WILD BOARS: HOGGING THE LIMELIGHT

The ongoing struggle to realise these desired outcomes signals a challenge inherent to managing urban nature as a service-providing

ecosystem. Namely, uncertainty lingers regarding how best to achieve such relatively peaceful coexistence with fellow valued inhabitants of an urban ecosystem. Scanning the globe reveals that Singapore is far from being the only city working through this issue in relation to a wild pig population. It also shows that approaches to human-hog urban coexistence vary wildly.

For instance, the swampy US city of Houston, Texas has struggled with a pig presence for decades. In stark contrast to Singapore, gun ownership is common there, and residents are allowed (even encouraged) to shoot feral hogs in many settings (hunting in nature parks, however, is far more restricted). Such an acceptance of vigilante culling seems to have done little to limit the population, however, as the local media has reported a steady stream of attacks and property damage within and beyond city borders. Recognising the species' ubiquity, in the 2010s some city leaders pushed for a programme that transformed the animals into a nutritional resource: the meat from trapped pigs was processed and donated to local food banks. The programme is now dormant, however, due to lingering concerns about spreading disease via hog meat.

Barcelona, Spain takes a substantively different approach to its urban boars, many of whom reside in a sprawling nature reserve directly adjacent to the city. In 2013, the city hired a team of veterinary researchers from the Autonomous University of Barcelona to assist

with managing the pig population. Strategic culling is involved: the scientists conduct targeted killings, focusing on female pigs of reproductive age. But the team also works to defuse potentially tense human-hog encounters, sending representatives to the scene when alerted that a boar is entering a crowded area. By encouraging bystanders to notice and avoid the animal in their midst, the researchers help to cultivate a more peaceful coexistence.

Within Asia, Hong Kong is perhaps the city most notorious for its boar management struggles, following high-profile incidents involving pigs entering its airport complex. The stakes for pig containment there are particularly high due to the presence of pig farming on the island, and the growing fears of disease transmission between wild and domesticated hog populations, given the presence of ASF that has been detected among the former. Following a rash of pig collisions within the urban fabric, in the fall of 2021 the Hong Kong government announced a new, aggressive approach to culling the population, a programme that has been fiercely criticised by animal rights groups.

Since 2018, when wildlife management was fully folded into the portfolio of NParks, Singapore has charted something of a middle path. Agency representatives conduct occasional boar culling, particularly following violent human-hog encounters. But the organisation coordinates its responses with those of the Animal Concerns Research and Education

Society (ACRES), an animal welfare group that seeks to facilitate peaceful coexistence between humans and wildlife on the island. While concerning incidents have not entirely disappeared, far more common are benign encounters, as when weekend park-goers share grassy knolls with grazing pigs, always keeping several metres of distance between them.

Furthermore, recognising that motor vehicles pose major risks to boars and other wildlife, the city has begun to invest in ‘eco-link’ infrastructures, which are planted overpasses that offer animals a safer route across busy motorways. While such installations have not halted pig deaths via cars, they serve as a promising example of how the project of strategically expanding green spaces can coexist with other vital land uses, helping to sustain a range of species in the process.

CONCLUSION

As such trajectories attest, cities across the globe are actively grappling with the human-wildlife encounters that pursuing strategic programmes of urban greening can produce. The range of approaches suggests that local regulations, cultural norms, and neighbouring industries are likely to shape the effectiveness of management techniques in a given setting. But while some may feel anxiety upon reviewing such variable, imperfect playbooks for coexistence, such experimentation can also be viewed through a more hopeful lens. Creating a “City in Nature”—a goal rooted in recent advances in ecological, engineering, and

planning research—is undoubtedly a valuable and cutting-edge objective. Figuring out the complications and contradictions that such a complex environment entails would be an opportunity to demonstrate a new sort of urban leadership. [SMU](#)



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