More than a colour: green as ethical and political decision in architecture

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Abstract

Vegetated architecture (green roofs, façades, and living walls) is commonly promoted for mitigating urban heat, improving air quality, and enhancing human comfort. Such framings, however, reduce 'green' to a technical feature or visual marker within a sustainability checklist. This chapter advances a different claim: green is not a colour, a material, or a performance metric, but an ethical and political decision. Designing with vegetation reintroduces life into architecture and, with it, non-human agency, ecological uncertainty, and moral responsibility. Vegetated buildings do not merely modify microclimates; they actively reshape patterns of urban coexistence. They destabilise conventional notions of property, challenge anthropocentric ideals of cleanliness and control, and expose architecture's long-standing role as a technology of exclusion. Addressing both global heating and biodiversity collapse as intertwined crises, the chapter argues that green architecture must be evaluated not only by its benefits to humans, but by its capacity to host, sustain, and refrain from killing other forms of life. Drawing on architectural theory, urban ecology, environmental ethics, and legal scholarship, the chapter develops its argument through critical analysis of existing frameworks rather than empirical investigation. Through an examination of faunal habitation, toxic maintenance, legal responsibility, labour, aesthetics, and participation, the chapter proposes a shift from sustainability as mitigation towards an ethics of multispecies cohabitation in the urban realm.

Keywords

Vegetated architecture; Multispecies cohabitation; Urban ecology; Anthropocentrism; Property and Stewardship.

1. Introduction: green as decision

Greenwashing has entered architectural discourse most prominently through the rhetoric of Nature-Based Solutions (NBS). Framed as an emergent and progressive field, NBS frequently mobilises the language of 'nature' and 'green'

to legitimise interventions that leave the underlying political economy untouched. In many cases, environmental concern is reduced to a branding strategy, allowing conventional corporate and neoliberal practices to persist under an ecological veneer. While not all NBS initiatives amount to market economy painted green, much of the literature surrounding them is articulated through an explicitly economistic vocabulary that reveals its ideological commitments rather than challenging them [1]. Recent attempts by the European Commission to regulate misleading green claims illustrate both the scale of the problem and the resistance it encounters: the withdrawal of these proposals under pressure from vested interests confirms how deeply entrenched greenwashing has become [2–4].

The worldview underpinning most NBS discourse is continuous with mainstream capitalism and anthropocentrism. Human interests are treated as intrinsically valuable, while all other beings and materials acquire value only insofar as they serve those interests. The Earth is thus conceived as a repository of resources, a toolbox at humanity's disposal [5]. This is not, however, the only possible approach. It is both possible and necessary to adopt a worldview in which non-human beings and ecosystems possess intrinsic value, without recourse to mysticism or religion. From this perspective, the most urgent task is not to multiply Nature-Based Solutions, but to abandon their instrumental framing altogether. Green architecture must cease to be 'nature-based' in a managerial sense and become simply natural, in the ethical sense of recognising life as more than a means.

'Green' has become one of the most saturated adjectives in contemporary architectural discourse. It signals moral virtue, technological sophistication, and compliance with sustainability standards. It reassures institutions and investors that environmental responsibility has been addressed. Yet this semantic inflation conceals a fundamental misunderstanding. Green is not an attribute that can be applied to a building. It is a decision.

To design with vegetation is to make a choice that exceeds aesthetics and performance. It is to decide which forms of life may enter the architectural envelope, under what conditions, and with what consequences. This decision is ontological, because it determines who exists where; ethical, because it redistributes vulnerability and exposure; and political, because it challenges prevailing regimes of ownership, control, and exclusion in the city [6].

Mainstream architectural discussions continue to frame vegetation instrumentally, as a device for shading, cooling, or enhancing human well-being. These effects are real and valuable, but this utilitarian framing obscures the deeper implications of reintroducing living systems into the built environment. Vegetation does not arrive alone. Soil, water, insects, birds, rodents, fungi, and bacteria follow. Life invites life.

When this occurs, the building ceases to be a sealed artefact optimised for human use and becomes a porous interface within a broader urban ecosystem. This porosity is not merely biological. It is conceptual and ethical. It destabilises

architecture's self-understanding as a domain designed exclusively by and for humans, and forces the discipline to confront its anthropocentric foundations.

Architecture has long been understood as a humanist art. Today, the converging crises of climate destabilisation and biodiversity collapse demand a posthumanist reorientation, in which identity, agency, and responsibility are reformulated through an acknowledgement of entanglement with non-human animals, technological systems, and ecological processes.

This chapter adopts a theoretical and critical approach rather than an empirical or experimental methodology. It draws on architectural theory, urban ecology, environmental ethics, and legal scholarship to examine the ethical and political implications of vegetated architecture.

Rather than offering a comprehensive survey, the chapter develops a series of interrelated arguments that expose recurrent blind spots in what is commonly labelled 'green architecture'. Together, they form an evaluative framework for assessing the ethical depth, rather than the visual or technical performance, of vegetated architectural interventions.

The metaphor of colour itself is instructive. In biological terms, green arises from chlorophyll, a pigment that absorbs red and blue wavelengths, reflecting green light to our eyes. In this sense, greenness in nature emerges through subtraction rather than addition. By analogy, greenness in architecture similarly arises less from the mere addition of plants or technological interventions than from the subtraction of greenwashing, anthropocentric assumptions, and techno-optimistic shortcuts. In other words, ethical and ecological greenness requires stripping away human-centered biases and superficial sustainability gestures to reveal genuine coexistence with non-human life.

This chapter deliberately moves between planetary-scale considerations and specific questions of architecture and urban practice, a shift that may appear as a jump between abstract and concrete levels of analysis. This movement is intentional and necessary. The ecological, climatic, and ethical crises discussed here do not operate at a single scale but emerge from the continuous interaction between global systems and local decisions.

Climate change and biodiversity loss are planetary phenomena produced through the accumulation of situated actions, while their consequences materialise locally in buildings, neighbourhoods, and everyday environments. In a highly interconnected world, the local cannot be meaningfully discussed without reference to the global, nor can global dynamics be understood without examining the architectural and urban mechanisms through which they are enacted.

Architecture and urban planning are therefore not peripheral to planetary crises but constitute key sites where global abstractions are translated into material, ecological, and political realities. Treating these scales as analytically inseparable allows the chapter to address responsibility, agency, and ethical consequence where they actually operate: at the intersection of planetary processes and

concrete design decisions.

This chapter sets out to reframe vegetated architecture as an ethical and political decision rather than a technical or aesthetic one. It argues that introducing vegetation into buildings is not a neutral act but one that generates moral responsibilities toward non-human life, challenges existing legal and property regimes, and demands a fundamental revision of the anthropocentric assumptions embedded in architectural practice.

The argument unfolds as follows. Section 3 situates architecture historically as a technology of separation and examines the paradox of its current ecological turn. Section 4 challenges the urban/rural duality and introduces the concept of the urbansphere. Sections 5 and 6 address the ecological cascade triggered by vegetation and the twin crises of climate change and biodiversity loss. Sections 7, 8, 9, and 10 examine the faunal, legal, social, and material dimensions of vegetated architecture respectively. Sections 11 and 12 address the cultural and epistemic shifts required. Section 13 draws conclusions and lessons.

2. Methodology

This chapter adopts a theoretical and critical approach. It does not present empirical data, experimental results, or case study evidence, but instead develops a conceptual argument through the critical analysis of existing literature and frameworks.

The literature mobilised spans four domains: architectural theory and history, urban ecology and conservation biology, environmental ethics and political philosophy, and legal scholarship on property and rights of nature. Sources were selected not through systematic review but through theoretical relevance: the aim is not comprehensiveness but analytical depth. Priority was given to works that either underpin the dominant paradigms under critique or offer resources for their contestation.

The chapter connects these domains through a single organising question: what ethical and political commitments does the decision to introduce vegetation into buildings actually entail? Architecture provides the material site; ecology describes the living systems reintroduced; ethics evaluates the responsibilities generated; and law reveals where those responsibilities are currently unrecognised or suppressed. Each domain is necessary, none is sufficient alone.

This integrative approach is itself a methodological position. The separation of technical, ecological, ethical, and legal questions into distinct disciplinary silos is part of what the chapter argues against. Treating them as analytically inseparable reflects the relational logic the chapter defends.

3. From separation to reconnection

3.1. Architecture as the technology of separation

Architecture has historically functioned as a technology of separation [7]. Walls, roofs, floors, and thresholds are not neutral constructions but mechanisms designed to exclude the external world and stabilise an interior environment for human life [8]. From early shelters to contemporary high-rise buildings, architecture has sought to regulate climate, filter organisms, and impose order on an unruly outside.

At its foundations, architecture is thus conceived as a means of separating humanity from the rest of the living world [9]. The threshold between what comes to be defined as 'human' and 'natural' initially takes the form of an abrupt boundary. Over time, this boundary evolves into a layered gradient in which wild ecosystems are progressively displaced by domesticated, controlled, or exploited forms of nature [10].

This logic of separation intensified with industrialisation and the rise of hygienist urbanism [11]. Modern urban design increasingly framed nature as something to be controlled, sanitised, or aestheticised. Non-human life was confined to parks, gardens, and pastoral representations, while buildings aspired to sterility, smoothness, and predictability. Architectural success became synonymous with the capacity to exclude other forms of life.

The ecological consequences of this separation were initially invisible. They became apparent only when nature returned uninvited, not as a companion but as a threat: through pollution, heatwaves, flooding, and ecological collapse [12, 13]. What architecture had expelled now re-enters as disruption.

3.2. The paradox of return

Green roofs and vegetated façades are frequently presented as gestures of reconciliation between architecture and nature. Yet they are also paradoxical. An architectural culture long defined by exclusion now seeks to reintroduce the very life it expelled. This return is typically framed as innovation rather than restitution, as if nature were a novel technology rather than a displaced participant.

Understood in this way, vegetated architecture functions as a form of confession. It tacitly acknowledges that an architecture without soil, water, and non-human life has failed to produce viable urban environments. The crises of climate and biodiversity are not external to architecture. They are, in part, consequences of its historical commitments.

Decades of separation have left deep cultural imprints. Urban societies have learned to associate autonomous non-human life with disorder, risk, and contamination. Rodents, pigeons, insects, and spontaneous vegetation are no longer perceived as cohabitants but as intrusions. Fear of disease, amplified by media

narratives and the memory of pandemics, reinforces a sanitary ideology in which life itself appears as a potential threat.

This fear is profoundly misplaced. Most contemporary zoonotic diseases originate not in urban wildlife but in industrial animal agriculture and the violent compression of species for economic efficiency. Yet the pigeon on the balcony or the mouse on a green roof is demonised, while the structural causes of ecological breakdown remain largely unchallenged. The irony is stark.

A renewed architectural ethics does not require sentimentalising urban fauna or transforming them into companions. Respect does not imply intimacy. It requires recognition. Pigeons, wild boars, rodents, insects, and other marginalised species are not aesthetic failures of the city. They are its survivors, inhabiting the same degraded environments that humans have produced.

4. Urban and wild

4.1. The urbansphere

Just as the Sun's heliosphere extends far beyond its visible boundary, the extent of a city extends well beyond its apparent limits. The separation that architecture establishes between the human and the natural world is not abrupt but mediated through a layered zone of domesticated landscapes. This zone, commonly described as 'rural', is better understood as the city's urbansphere.

The urbansphere encompasses the territories and systems that sustain urban life: agriculture, energy production, material extraction, waste absorption. When urban metabolism is considered seriously, the urbansphere emerges as one of the city's most consequential layers.

A persistent misconception equates the rural with the green. Escaping the city is often imagined as an encounter with nature. While rural landscapes may contain more vegetation, they are rarely wild. They are typically owned, managed, and intensively controlled. In many regions, agriculture, particularly animal agriculture, dominates land use, while hunting practices suppress any resurgence of autonomous ecosystems.

Predators are systematically eliminated in collaboration with livestock interests. The resulting trophic imbalance is then used to justify further human intervention, as hunters position themselves as regulators of a disturbance they have themselves created. Wilderness, understood as space not subordinated to human extraction or control, is effectively excluded.

There is no greenness without space for wilderness. What is often called 'nature' is frequently as ecologically depleted as the city centre. Pasture, exploitation, and control leave little room for autonomous life.

Urban cores concentrate populations and consumption. The vast majority of land appropriated for food production serves animal agriculture, largely due to inertia

rather than necessity. Plant-based food systems would require significantly less land and resources while radically reducing harm to other sentient beings.

Despite its greener appearance, the urbansphere is often the least green component of the urban system. It is where most ecological damage occurs. The rural is not the opposite of the urban. It is its extension. The city is only the visible tip of a much larger metabolic structure. Failing to acknowledge this continuity undermines any attempt at meaningful urban sustainability.

4.2. The misplaced duality

The commonly invoked duality between urban and rural is both misleading and politically unproductive. These domains are treated as antagonistic communities: one consuming, the other producing. Rural labour supplies cities with food and resources while remaining economically undervalued; rural populations, in turn, often regard themselves as living in nature and possessing it.

This false opposition obscures a more fundamental division. When urban and rural occupy the entire conceptual field, wild ecosystems are marginalised altogether. Real nature disappears from the discussion.

Reframing urban and rural as interdependent layers of a single system dissolves this antagonism and opens space for a true antagonist: the wild. At a planetary scale, the rural has spread almost everywhere, while urban centres form dense hubs within a global network. What remains outside this network is increasingly fragmented and fragile.

Urban planning that adopts this perspective can begin to formulate genuinely ecological questions. The meaningful duality is not urban versus rural, but urban versus wild. If architecture seeks to become greener, it must participate in rewilding, not only within metropolitan cores but across the urbansphere that sustains them.

5. The technological condition of the vegetated skin

5.1. From fear to feasibility

For much of architectural history, vegetation was perceived as a threat to buildings. Roots, moisture, and decay were understood as enemies of structural integrity and material longevity. These fears were not unfounded within the constraints of earlier construction techniques.

Today, however, most technical obstacles have been addressed. Root barriers, lightweight substrates, controlled irrigation, and modular systems have made vegetated roofs and façades feasible on almost any building surface. Surprisingly, awareness of these technical achievements is not widespread, and the

aforementioned fears remain common outside specialist and technical circles.

Since such systems can now be built, they are built, albeit still sparsely. This has shifted the central question from whether vegetated systems are feasible to why they are implemented, and, more crucially, for whom, and under which ethical assumptions.

For centuries, technological infeasibility served as a convenient justification for excluding vegetation from buildings. That justification is no longer tenable. Ethical deliberation should now take centre stage. Yet, too often, vegetation is installed merely because it is technically possible, because it improves material or energetic performance, or because it can be mobilised as a source of generic 'social benefits'. In all these cases, vegetation is treated as a means rather than as a commitment, and the broader implications and consequences of reintroducing life into buildings are dismissed, misunderstood, or actively rejected.

5.2. Life invites life

Vegetation does not exist in isolation. The introduction of soil and plants initiates a cascade of ecological relationships [14]. Insects arrive to feed and pollinate; birds follow insects; rodents exploit shelter and resources; predators respond in turn. A vegetated building thus becomes a node within the city's metabolic and trophic networks, exchanging energy, nutrients, water, and heat [15].

In this sense, the vegetated skin of a building is not an object but a habitat [16]. Yet architectural practice often continues to treat it as a decorative surface, designed to appear stable and controllable. The vitality of living systems (their capacity for growth, decay, predation, and death) conflicts with modernist ideals of cleanliness, order, and permanence.

Much like the dysfunctional dynamics of the urban sphere more broadly, narrowly focused attempts to curate and control these habitats from a quasi-divine perspective tend to end badly. Rather than inhabiting a shared space with generosity, humans often perceive conflict and threat when confronted with other beings. Here, the aspiration to control life as a god directly contradicts life itself.

Owners of vegetated buildings therefore commonly adopt a hunter's narrative and resort to violence. Attempts to preserve only 'pleasant' forms of life lead to exclusionary practices that undermine the very systems they claim to support. Yet these same actors frequently present themselves as promoters of nature and guardians of ecological balance. Predators are eliminated first; the rest soon follow. Only what delivers a narrowly defined, serviceable outcome is allowed to remain. This logic is the exact opposite of what green architecture should mean.

6. The twin crises and the common cause

6.1. Architecture's partial response

Environmental design has largely framed its responsibility through the lens of climate mitigation, and only recently has it begun to consider adaptation [17]. Green buildings are praised for reducing energy demand, moderating microclimates, and improving thermal comfort. These contributions are significant and necessary.

Yet this focus addresses only one dimension of a broader planetary emergency: the consequences of the global greenhouse effect. Biodiversity collapse remains marginal in architectural discourse and, more broadly, in public awareness. Even in media coverage, while Conference of the Parties (COP) climate summits receive substantial attention, the equivalent summits addressing biodiversity loss under the Convention on Biological Diversity (CBD) are largely ignored and unknown to the general public.

Vegetation in buildings, although capable not only of thermal regulation but also of acting as habitat, is primarily valued for its instrumental benefits to humans rather than for its capacity to sustain ecological communities. As a result, a building may perform well energetically while remaining biologically sterile.

There is a marked asymmetry between what are, in reality, twin crises. Climate change is treated as a human problem insofar as it represents an immediate or near-term inconvenience, while biodiversity loss is relegated to the background as an optional or even excessive concern.

6.2. Human supremacism

This asymmetry is rooted in a failure to confront the common cause of both crises: anthropocentrism, or human supremacism. Humans consider themselves superior, fundamentally different, and situated on a higher plane than all other beings.

Both crises stem from the belief that the world belongs exclusively to humanity. The climate crisis manifests the consequences of this belief at the energetic and thermal levels, while the biodiversity crisis exposes the consequences of claiming mastery over the entirety of life on Earth.

Together, these crises demonstrate that humans, despite their epistemic arrogance [18], possess limited adaptive and survival capacities. If the ultimate criterion of superiority were survival, then humans are failing it decisively.

Within building and urban disciplines, which are deeply intertwined and treated here as largely equivalent, it is common to find studies portraying humans as the primary victims of both crises, most often of the climate crisis. For instance, analyses of deadly heatwaves routinely describe human suffering without any

mention of other, equally sentient victims, or of the fact that humans are the principal cause of these events.

Similarly, extensive bodies of research address social vulnerability [19], a necessary and valuable endeavour. Yet these studies frequently omit what are systematically the most vulnerable layers of all: non-human, but equally sentient, beings. The failure to address this glaring omission is symptomatic of a deeper failure to confront the root cause of both crises. This chapter argues that, as long as humans think only of themselves, or continue to think of themselves as superior, greenness and humanity remain fundamentally incompatible.

6.3. Ecology as reciprocity

The alternative to anthropocentrism is reciprocity, and reciprocity is precisely what ecological design demands. Architecture must not only mitigate and adapt to the worst consequences of environmental degradation but also actively contribute to the regeneration of urban ecosystems. A green skin that cools interiors while excluding birds and insects is not ecological; it is, at best, narrowly efficient.

Reciprocity requires expanding the ethical scope of architecture beyond mitigation and adaptation toward participation. Buildings must be conceived not only as shelters for humans but as contributors to shared habitats.

In discussions of ecology, conservation biology necessarily plays a central role, providing an indispensable scientific framework for understanding species, populations, habitats, and their interactions. While architects and urban planners should acquire basic ecological literacy, the involvement of ecological experts in design processes is essential. Ecology remains the gold standard for assessing ecological value [20].

However, this scientific framework is not free from controversy. While indispensable, ecological concepts often carry a latent anthropocentric bias. In conservation practice, life is commonly assessed through function and system-level outcomes, while individual beings dissolve into statistical aggregates [21].

The very term 'biodiversity' reflects this bias. Biodiversity refers to variation at genetic, species, and ecosystem levels [22, 23]. It is an aggregate measure of biological complexity rather than an account of individual sentient experience [24, 25]. Within ecological discourse, the value of biodiversity is typically derived from the resilience, productivity, and stability it affords to ecosystems.

The tension between biodiversity conservation and animal sentience lies in their respective units of concern. Biodiversity is holistic and functional, prioritising systems rather than the suffering or welfare of individuals.

For example, when conservationists label a species as invasive, management strategies often involve the mass killing of thousands of sentient individuals, sometimes to protect a rare plant species or a particular ecosystem configuration.

Under frameworks influenced by natural selection, high biodiversity is sustained through competitive pressures, which depend on predation, starvation, and disease to filter genetic traits.

The controversy surrounding the distinction between 'invasive' and 'native' species is twofold. First, humans decide which species belong to which category, often on the basis of partially arbitrary criteria. A species may be considered invasive until it becomes local; the distinction depends on when a temporal boundary is imposed. Comparable dynamics occur with cultures and languages.

Second, and more importantly, any human assessment of invasiveness that fails to address human expansion itself reveals a profound and pervasive bias within ecological discourse. This bias becomes evident in the double standard by which relatively limited non-human expansions are condemned as invasive, while the large-scale and historically unprecedented spatial expansion of human societies is exempted from scrutiny and instead reframed as normal, necessary, or even desirable for maximised human comfort.

Recognising all beings, particularly sentient ones, as individuals with intrinsic value destabilises this managerial stance. While the importance of ecological conservation is unquestionable, the systematic neglect of sentience and the failure to confront the most extreme case of invasiveness leave fundamental ethical questions unresolved, questions that ecology alone cannot answer.

Ethics is the discipline concerned with intrinsic value at the level of individuals, regardless of their systemic function. This requires moving beyond humanist ethics, which underpins anthropocentrism, toward a posthumanist ethics that encompasses all sentient beings.

Without rejecting ecological thinking, ethical reasoning cannot be derived solely from population dynamics. A genuinely ecological approach must therefore hold together two commitments: the integrity of ecosystems and the moral irreducibility of the lives within them.

The lack of ethics in the dominant worldview is not a third crisis alongside climate change and biodiversity loss. Rather, both crises are direct consequences of a deeper ethical failure: human supremacism. Attempts to address the twin crises without confronting their common source are therefore bound to fail. The path to greenness is ethical, and its practical implementation is necessarily political.

Architects and urban planners tend to focus on climate impacts affecting humans. Ecologists tend to focus on aggregates and system dynamics, often without regard for individuals. If responsibility is left exclusively to technical experts, the core crisis will remain unaddressed. These experts, too, must step beyond the boundaries of their disciplines and take a position on what is ethically at stake in the long term.

7. The faunal dimension: coexistence and control

7.1. Ecological hierarchies

Urban ecosystems operate through trophic hierarchies. As already noted, insects attract birds; birds attract predators; rodents attract scavengers and raptors. Attempts to arrest this process at an early stage, often presented as a sanitised version of an ecosystem that celebrates pollinators while exterminating rodents, are ecologically incoherent.

The desire for predictable, visually pleasing nature in the built environment leads to practices such as netting, trapping, and pest control. These interventions dismantle the complexity required for ecological resilience. What remains is not an ecosystem but a managed display. Once again, this is the urban equivalent of hunting.

What is defended here is not a sentimental position but an urban-systems argument against architectural invitation followed by extermination.

When ecological hierarchies are allowed to develop, increasingly powerful actors enter these habitats. Humans, despite their technological and social dominance, often exhibit a disproportionate fear of such actors when they appear capable of challenging that dominance. Being socially and technologically strong but physiologically vulnerable, the prospect of sharing space with physically powerful beings exposes a latent fear. Any sign of power is perceived as rivalry and is swiftly eliminated. This characterisation may appear radical, but the radical element lies in the facts themselves and in the silence that usually surrounds them.

7.2. The ethics of killing

If architecture invites life, it must accept the consequences of that invitation. From an ethical standpoint, killing beings that have been deliberately or foreseeably hosted is ethically indefensible. Eliminating rodents or pigeons from vegetated roofs because they inconvenience human users merely reproduces the logic of domination that underpins environmental collapse. This is not an argument for uncontrolled proliferation. It is an argument against architectural hospitality followed by extermination.

In most cases, killing is simply the cheapest and laziest option, and not necessarily the most effective one, even when concerns about suffering are set aside. A well-established alternative is the managed dovecote, where pigeons are free to enter and leave, their health can be monitored, parasites treated, and eggs selectively replaced with decoys to prevent population growth. This approach is known as the 'Augsburg Model' or 'Integrated Pigeon Management' [26, 27].

Such systems can be not only more ethical but also more effective than culling or the use of sterilising feed. Culling creates a surplus of resources, such as food and nesting sites, which increases breeding rates and attracts pigeons from

neighbouring flocks. Sterilising feed carries a high risk of secondary poisoning for non-target species, including raptors and songbirds, and requires continuous, costly distribution. Managed dovecotes, by contrast, concentrate populations in specific locations and can reduce new hatches by 80–90 per cent through egg replacement, while maintaining strong ethical standards.

By analogy, ethical green architecture must prioritise coexistence over curation. It must accept noise, unpredictability, and decay as conditions of life, while actively promoting practices based on cooperation and restraint rather than control.

7.3. Poisoned hospitality: the contradiction of toxic maintenance

It is not uncommon for green roofs and façades to be maintained using rodenticides, insecticides, and herbicides, sometimes discreetly and sometimes as standard contractual practice. Many owners fear that vegetation will attract 'unwanted' species and, rather than exploring creative alternatives, such as strengthening trophic chains through biological control, adopting Augsburg-style management, or employing mechanical exclusion, they turn to pest-control companies, whose recommendations are often both biased and narrowly framed.

As a result, chemical extermination frequently becomes the default response after the slightest sighting of, for example, a rodent. This practice constitutes what can be described as poisoned hospitality.

Poisoned hospitality exposes a profound contradiction. Spaces explicitly designed to host life become sites of systematic killing. Rodenticides do not remain confined to their targets [28]; they bioaccumulate and move through trophic chains, poisoning predators such as owls, kestrels, and foxes. In urban ecosystems already under stress, this toxicity spreads quietly, eroding ecological function while preserving a superficially green appearance [29, 30].

Furthermore, many green roofs include vegetable plots that coexist with rodenticide traps, creating risks far greater than the alleged and often misplaced dangers these measures are intended to prevent. Additional concern arises when such decisions are taken in projects that have been partially or wholly funded with public money and are subject to limited oversight.

The use of poisons in ostensibly ecological architecture reveals a persistent anthropocentrism. Vegetation is tolerated only insofar as it conforms to human expectations of control. Ethical green architecture is incompatible with chemical extermination. Care, observation, and restraint, rather than domination, are the true indicators of ecological maturity.

8. Legal and political implications

8.1. The question of citizenship

Human law is structurally exclusive. While contemporary legal systems increasingly recognise the need to protect certain animals, species, and habitats, they continue to reserve full legal subjecthood, rights, and political standing almost exclusively for humans. Non-human life is protected conditionally and instrumentally, not recognised as a bearer of rights in its own terms. By maintaining this asymmetry, the law fractures justice into multiple, incompatible regimes: one in which humans may claim rights and remedies, and others in which non-humans are managed, conserved, or sacrificed according to human interests. Where such plural justices coexist, what emerges is not balance but structural injustice. This condition is further aggravated by inequality: wealth allows some to bend or evade the consequences of law, while others cannot. For those not recognised as legal subjects at all, injustice remains pervasive and largely unchallengeable.

Physical law, by contrast, is universal. It applies indiscriminately to every atom in the universe. No individual, regardless of wealth or power, can escape its consequences. No species, regardless of its claims to supremacy, can exempt itself from thermodynamics, ecological limits, or biological vulnerability.

When human legal systems are formulated in ways that actively destabilise the Earth system, the resulting consequences cannot be negotiated away. The wealthiest may buffer themselves from early or milder impacts, but no legal privilege can ultimately override physical limits. Climate disruption, biodiversity collapse, and ecosystem degradation do not recognise ownership, citizenship, or contractual boundaries.

In architectural contexts, urban greening, particularly when implemented on buildings, exposes and destabilises the existing legal framework, most notably private property. When birds nest in façades or bats occupy roofs, the boundaries of ownership, control, and responsibility become ambiguous. Buildings cease to be inert assets and become sites of shared habitation, where human claims of exclusivity are materially contested.

Emerging debates on the rights of nature propose extending forms of legal personhood beyond the human realm [31]. Conceiving fauna as urban cohabitants, or even as citizens, is not sentimentalism but a recognition of ecological interdependence and co-production [32]. These debates expose the inadequacy of legal systems grounded in human exceptionalism when confronted with multispecies urban realities.

The ethical force of this position does not depend on immediate legal reform. Moral standing precedes legal codification. Ethical behaviour cannot wait for legal compulsion; rather, sustained shifts in social practice are what eventually shape the law. To defer responsibility until legislation changes is itself an ethical failure.

At present, property owners exercise de facto authority over the lives hosted by their buildings. This authority is ethically problematic and must be constrained. A genuine multispecies urbanism would redistribute power away from absolute ownership towards shared responsibility. Decisions regarding cohabitation should be guided not by ownership alone but by ecological continuity, precaution, and moral restraint. The role of law, in this context, should be to limit human interference rather than to formalise domination.

Within a posthumanist ethical framework, humans possess no legitimate natural authority to determine the fate of autonomous beings whose presence sustains urban ecosystems. To claim such authority is to extend a colonial logic of mastery to other species. Multispecies urbanism therefore redefines citizenship itself. Civic responsibility must include accountability towards non-human cohabitants, not as metaphors, but as materially present participants in urban life.

8.2. Property and responsibility

Vegetated architecture transforms property from an inert asset into a living assemblage. Ownership under these conditions cannot be separated from responsibility. To possess a green roof or façade is not merely to control a surface but to assume an obligation to sustain life, including its unpredictability and persistence.

This shift challenges prevailing notions of private property and calls for a transition from ownership to stewardship. Green ownership entails care, patience, and the acceptance of ecological agency. It requires recognising that some outcomes cannot be fully controlled and that ethical responsibility increases, rather than diminishes, with power.

8.3. Nature as a legal entity

In building and urban development, three main legal actors typically structure decision-making: architects and engineers; construction and service companies; and property owners. Legal institutions primarily exist to regulate and enforce contractual relationships among these parties.

Neither nature as a collective entity nor the non-human individuals directly affected by these decisions are granted representation, let alone rights. Their interests are mediated, if at all, through human proxies whose priorities are rarely ecological.

Moreover, in the increasingly frequent context of climate-related catastrophic events, only humans are formally recognised as victims. Non-human lives are recorded as material losses, and often only insofar as they translate into economic damage for human stakeholders. Ecological destruction is rendered legible only when it affects human property or insurance claims.

Green ethics can therefore only initiate a process that must eventually crystallise

into green law: a legal framework that enforces not only human rights but also human obligations, and that aligns human legal systems with the physical laws governing the Earth system. Without this alignment, legality becomes a mechanism for systemic irresponsibility.

9. Social and economic dimensions

9.1. Green gentrification

Urban ecological symbols, such as the Superilla in Barcelona, are rapidly commodified by urban markets [33]. Green roofs and façades are frequently deployed in high-end developments as markers of environmental virtue, contributing to rising property values and processes of social displacement. This dynamic of green gentrification undermines the universal rhetoric of sustainability [34, 35].

When access to ecological amenities is restricted to elites [36, 37], green architecture risks reinforcing inequality rather than addressing collective crises. An ethics of vegetated architecture must therefore engage not only with non-human life but also with social justice. Green design that excludes vulnerable populations while accommodating the wealthy betrays its ecological claims.

Green roofs and façades remain among the most expensive architectural interventions, financially accessible primarily to public institutions and affluent private actors. For elites, the green roof often becomes a gesture of prestige, a performative offering to 'nature' that simultaneously reinforces social distinction [38]. Sustainability is aestheticised and privatised.

It is difficult to convince those who can afford such systems that they should invest not for comfort, visibility, or branding, but as a modest contribution to urban ecology. Yet this is precisely what genuine greenness demands: relinquishing space, resources, and control for the benefit of other forms of life.

The ethical tension is acute. Should the few who can afford these systems be trusted as the guardians of ecological generosity? Or does their very cost reveal a structural contradiction between capitalist accumulation and ecological sincerity [39]?

9.2. Citizen participation

It is difficult to value, let alone care for, something that has never been experienced. The form of green defended in this chapter is likely to feel unfamiliar, even unsettling, to many urban residents. For large segments of the population, daily life unfolds in environments where non-human life is largely absent or heavily sanitised.

Encounters with 'nature' are often mediated through documentaries, tourism, or highly managed rural landscapes. Genuine ecological processes (decay, predation,

noise, unpredictability) are rarely experienced within one's own neighbourhood. As a result, urban nature remains abstract, aestheticised, or feared.

Citizen engagement in vegetated architecture therefore remains limited. Without participation, green buildings risk becoming distant spectacles rather than lived environments. Involving residents in maintenance, observation, and stewardship can transform green architecture from a passive symbol into a shared ecological project, strengthening social cohesion rather than eroding it.

Maintenance, particularly of green façades, is often technically complex and accessible only to specialised professionals such as climbers. This not only delays the detection of problems but also reinforces resident disengagement. What cannot be touched, adjusted, or cared for becomes alien.

The widespread fear associated with urban wilderness is largely cultural and can be challenged through direct experience. Attachment to specific creatures (birds, insects, plants) creates forms of care far more powerful than abstract environmental education alone. Emotional bonds, even modest ones, can foster responsibility without requiring sentimentality. People do not need to touch every creature, but proximity and familiarity dissolve fear more effectively than instruction.

10. Material and energetic paradoxes

10.1. The hidden costs of green systems

Many commercial green systems rely on industrial substrates, synthetic membranes, fertilisers, and energy-intensive irrigation and maintenance regimes. When assessed across their full life cycle, some installations may partially or entirely negate their intended ecological benefits [40–42]. These benefits may be offset through embodied energy, carbon-intensive materials, water consumption, and long-term maintenance requirements.

Such systems are often high-tech, proprietary, and dependent on specialised companies for installation and upkeep. The origin of substrates, fertilisers, and technical components is rarely transparent, and may involve environmentally damaging extraction or production processes. These origins matter. A green surface sustained by ecologically destructive supply chains reproduces the very logic it claims to resist.

This paradox demands a critical reassessment of sustainability metrics. Surface-level greenness is insufficient. Material honesty, supply-chain accountability, and life-cycle responsibility are essential criteria for ethical evaluation.

10.2. Temporal ethics: designing for life and death

Living systems age, transform, and die. Designing with vegetation therefore means designing for temporality, loss, and change. A green building is not a

static object but an evolving process. Unlike inert materials, living matter grows, decays, and responds to external conditions.

Vegetated architecture operates on its own temporal rhythm. It changes more rapidly than masonry yet more slowly than mechanical components. Seasonal cycles dominate, though extreme weather events can produce sudden and significant transformations, including changes in load and structure.

While irrigation can often be automated, many ecological processes resist automation. Maintenance may be delegated to professionals, but this frequently comes at the cost of resident disengagement. Care becomes outsourced, and responsibility diluted.

Design initiates conditions; evolution takes over. When biological processes override initial intentions, this should not be read as failure but as success. Ethical architecture learns to observe rather than correct, to adapt rather than dominate. Designing ecologically is designing for surrender.

A green building is not a monument to be preserved but a living assemblage to be cared for. Heritage, in this sense, does not apply only to singular buildings but to species that predate any city. Before any brick was laid, every urban site was already green. This ecological continuity constitutes a form of green heritage, the oldest and most valuable one, and when lost, it demands restoration rather than replacement.

11. Cultural and epistemic shifts

11.1. The aesthetics of disorder

Vegetated architecture disrupts urban aesthetics grounded in cleanliness, symmetry, and control. Soil spills, leaves fall, insects swarm. Accepting ecological authenticity requires a redefinition of beauty.

In living soils, excrement is reincorporated and transformed, completing nutrient cycles. In cities dominated by inert surfaces, this cycle is interrupted. Organic matter accumulates where it cannot be absorbed, and is then labelled as dirt. We blame excrement for its presence rather than the surfaces that obstruct its ecological function. The problem is not that excrement exists, but that concrete prevents it from completing its cycle.

Urban materials are, in this sense, the producers of dirt: they interrupt metabolic processes and force accumulation. We worry about concrete being degraded by excrement instead of concrete degrading the land.

Disorder is not negligence; it is evidence of life. Leaves, seeds, and grains are simply fulfilling their biological roles. Concrete and tarmac obstruct these processes and then frame their outcomes as contamination. The modern city prizes cleanliness and predictability; vegetated architecture introduces variability and excess.

The geometry of living systems sharply contrasts with Euclidean order. Nature is rugged, stochastic, and irregular, and this irregularity underpins ecological resilience and antifragility [43]. Accepting this aesthetic shift is essential for an ecological culture of design.

11.2. Evolved design

Architecture is trained to predict outcomes; ecology resists prediction. Vegetated buildings demand epistemic humility. Not all variables can be designed [44], and most consequences cannot be fully anticipated. This challenge marks a shift in professional identity. Architecture must collaborate with disciplines that accept uncertainty as constitutive rather than as failure. Non-linear, chaotic dynamics must replace linear thinking.

Design assumes intention and control. Evolution operates through chance, adaptation, and feedback. When vegetation colonises a roof or wall, biological processes rapidly overtake human design. Species migrate, compete, and adapt in ways no architect could foresee. This is not failure but ecological success.

The responsible architect learns from this transformation. Observation replaces correction; monitoring replaces enforcement. Architecture ceases to be the sole author of form. In this sense, nature also practices architecture, constructing and modifying structures according to its own logics.

The architect who insists on freezing a living system in its original design repeats the arrogance that has already undermined ecological stability. To design ecologically is to design for surrender: to initiate processes that will inevitably escape full control.

In this sense, vegetated architecture is not merely a technical frontier but an intellectual one. It invites architecture to collaborate with biology, climatology, and ethics, acknowledging that design now extends beyond human cognition.

11.3. The myth of the pest: invasiveness and human exceptionalism

The classification of species as pests or invasive is rarely ecological alone. It reflects cultural norms, aesthetic preferences, and collective anxieties. In cities shaped by globalisation, the distinction between native and alien is unstable and often arbitrary.

Organic matter denied its ecological cycle accumulates, attracting fauna that are then blamed for the conditions humans have produced. Disgust emerges not from the animals themselves but from interrupted processes. This misattribution fuels fear and repulsion towards otherwise clean and adaptive species.

Fear of disease provides a second source of disproportionate moral panic. Rats, in particular, have become paradigmatic objects of hatred. Rather than addressing

waste management failures, blame is displaced onto the animals that survive within them. This lateral displacement is a fallacy.

Pigeons illustrate a dramatic cultural reversal. Once symbols of peace and sanctity, they are now labelled as 'rats with wings'. This hostility borders on pathology. Pigeons are locally adapted, largely harmless, and socially complex, yet widely despised. Their demonisation reveals cultural prejudice rather than ecological assessment.

These are cultural barriers, not sanitary necessities. Such prejudices function as scapegoating mechanisms that externalise responsibility. It is easier to exterminate than to reform systems of management.

A more difficult question remains: would we accept genuinely dangerous species? If humans were judged by the standards applied to other species, we might qualify as a pest ourselves. Yet we invest immense resources in medicine and protection for humans while denying care to others. This double standard is ethically indefensible.

A truly ecological architecture rejects simplistic taxonomies of 'beneficial', 'disgusting', or 'dirty' species. Urban life unfolds through tension and negotiation. The term pest reveals more about human intolerance than ecological reality. Between universal extermination and universal care, coherence demands choosing the latter.

12. Green as renunciation

To be green is to renounce part of what humanity has claimed as exclusively its own. It is to share roofs, façades, and cities with other species. It is an act of surrender: a relinquishment of mastery and an acknowledgement that human centrality has failed.

This renunciation does not diminish architecture; it deepens it. Buildings cease to be symbols of domination and become platforms for coexistence. Separation gives way to integration. Such renunciation is difficult to imagine. Whether the obsession with control is genetic, cultural, or both, it is deeply entrenched. Yet the alternative, a world without renunciation, is even harder to conceive as viable.

Green architecture brings this dilemma into focus and is therefore a political act. It challenges property regimes, social hierarchies, and anthropocentric norms [45]. When it is truly green, it is not decorative. It is defiant. It demands that the city be understood as a shared habitat rather than a human dominion.

13. Conclusions: towards an ethics of cohabitation

13.1 Main conclusions

Vegetated architecture exposes a central contradiction in contemporary urbanism: the aspiration to reconcile with nature while retaining full control over it. This contradiction cannot be resolved through technical optimisation or aesthetic refinement alone. It requires a shift in ethical orientation, from management to coexistence, and from domination to restraint.

An ethics of cohabitation recognises the city as a shared habitat structured by multiple species, temporalities, and agencies. Vegetated buildings do not simply host plants; they reintroduce ecological processes, trophic relations, and non-human inhabitants into spaces historically designed to exclude them. With this reintroduction comes moral responsibility. Architecture that invites life while refusing its consequences reproduces the very logic of exploitation that underlies environmental collapse.

To be genuinely green, architecture must therefore abandon the fantasy of total control. Living systems are not decorative layers to be curated according to human preference. They are autonomous, dynamic, and often inconvenient. Accepting this reality demands humility: the recognition that design initiates conditions but does not govern outcomes, and that ecological success often manifests as unpredictability rather than order.

Cohabitation also has political implications. When buildings become living assemblages, private property, legal responsibility, and civic duty are destabilised. Green architecture challenges anthropocentric norms by revealing that urban space is not exclusively human territory. It exposes the inadequacy of legal and economic frameworks that treat non-human life as expendable while externalising ecological costs.

In this sense, 'green' cannot remain a descriptor of surfaces, technologies, or visual cues. It must describe a relationship: between humans and non-humans, between design and evolution, and between the city and the ecological systems that sustain it. Only when architecture accepts this relational condition can vegetated design move beyond symbolism and contribute meaningfully to resilient urban futures.

13.2 Lessons learned

Several lessons emerge that are directly relevant to policymakers, practitioners, and scholars working toward sustainable, inclusive, and resilient urban futures.

First, green architecture must be understood as a decision about life, not merely about performance. Vegetation reintroduces living systems into buildings, and with them non-human inhabitants, ecological uncertainty, and moral responsibility. Policies and design guidelines that frame green roofs and façades solely in terms of energy efficiency, thermal comfort, or carbon mitigation are insufficient.

Evaluation frameworks must explicitly account for biodiversity, faunal habitation, and the avoidance of practices that undermine ecological integrity, including chemical extermination and toxic maintenance.

Second, coexistence cannot be curated without contradiction. Attempts to selectively host 'desirable' forms of nature while excluding others through netting, trapping, poisoning, or extermination are ecologically incoherent and ethically indefensible. Practitioners must recognise that trophic complexity, unpredictability, and even inconvenience are intrinsic features of living systems. Best practice in vegetated architecture therefore involves restraint: designing for coexistence rather than control, and replacing domination-based maintenance with observation, adaptation, and care.

Third, sustainability must move beyond mitigation towards reciprocity. Reducing harm to the environment is no longer sufficient in the context of accelerating biodiversity loss. Vegetated buildings should be conceived as contributors to urban ecosystems rather than as green prostheses serving human comfort alone. For policymakers, this implies shifting incentives and regulations away from narrow performance metrics towards ecological contribution, including habitat continuity, species support, and long-term care.

Fourth, green architecture redefines responsibility and challenges existing property regimes. When buildings host living communities, ownership entails stewardship. Legal and regulatory frameworks must recognise that green infrastructure generates obligations, not merely economic or symbolic value. Limiting the discretionary power of owners to eliminate non-human inhabitants is a necessary step toward a more coherent multispecies urbanism.

Fifth, ecological ethics and social justice are inseparable. Processes such as green gentrification, unequal access to ecological amenities, and the outsourcing of maintenance labour reveal that environmental design can reinforce existing inequalities if left to market forces. Inclusive urban futures require that green interventions be equitably distributed, maintained under fair labour conditions, and embedded in participatory frameworks that engage residents as active stewards rather than passive beneficiaries.

Sixth, vegetated architecture demands epistemic humility from design disciplines. Living systems evolve beyond initial intentions. Accepting uncertainty, change, and decay is not a professional failure but a condition of ecological responsibility. Scholars and practitioners must recognise that sustainable urban futures depend not on total control, but on the capacity to design for adaptation, surrender, and long-term learning.

Taken together, these lessons indicate that 'green' should no longer function as a stylistic label or technical upgrade. It must be understood as a relational commitment: to coexistence, to restraint, and to shared responsibility across species. Only by embracing this shift can vegetated architecture move from symbolic sustainability toward genuinely resilient and ethical urban futures.

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