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Beyond the Lawn: Bylaws for Biodiversity - Evidence-Based Recommendations for Future Practice and Policy Development

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Beyond the Lawn: Bylaws for Biodiversity - Evidence-Based Recommendations for Future Practice and Policy Development

Across Canada and globally, there is growing momentum to mitigate the impacts of climate change and habitat loss on biodiversity. These challenges transcend the jurisdiction of any single government or agency. In response, people across urban areas are increasingly taking action, particularly through landscaping strategies that foster and support biodiversity at home in their gardens. In North American cities, private lands make up a significant and often majority of the urban matrix. As such, private lands offer opportunities to address anthropogenic socio-environmental impacts in cities in ways that complement municipal initiatives on public lands. Specifically, rewilding initiatives on private lands, in yards and gardens, present a tangible solution to renaturalize and connect larger urban ecological networks, while benefiting human wellbeing by nurturing new human-nature relations. Despite this opportunity, there exists ongoing conflict at the municipal scale between municipal-wide environmental goals, the bylaws that regulate landscaping on private property, and the freedom to cultivate support for nature through rewilding efforts in gardens. This paper centers on a pivotal case study in Ontario, Canada: the Hillcrest Meadow, a rewilded habitat garden, in west-midtown Toronto. For over a decade, the garden has been cultivated, stewarded, and maintained by the property owners. In 2020, the Hillcrest Meadow became the focus of media and public attention when the City of Toronto ordered the garden to be cut down, charging the owners with a violation of Toronto's Long Grass and Weeds Bylaw (as it was then known), Chapter 489 of the City's Municipal Code. This case is exemplary of many others across North America, and served as the catalyst for the Bylaws for Biodiversity (2021-2025) (B4BD) research project undertaken by the Ecological Design Lab at Toronto Metropolitan University. Initiated in response to the Notice of Violation served to the owners of the Hillcrest Meadow, later revealed a much greater issue of contradictory municipal biodiversity strategies and rewilding initiatives, and the regulation of gardens and landscaping on private property through municipal codes and bylaws, across public policies in Canada and the U.S. This paper uses the Hillcrest Meadow as a case study to introduce how property maintenance bylaws and municipal enforcement action in practice act as barriers to biodiversity and to the cultivation of rewilded gardens on private property across North American cities. This study draws from the insights that emerged as a result of the Hillcrest Meadow case, built upon policy analyses, interviews with subject matter experts, and experiential knowledge. The paper concludes by synthesizing the key findings into practical, evidence-based recommendations to inform future practice and policy development.

Keywords

rewilding, naturalization, habitat gardens, ecological design, urban biodiversity, municipal bylaw reform

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one that starts at home in the garden.

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BEYOND THE LAWN: BYLAWS FOR BIODIVERSITY - EVIDENCE-BASED RECOMMENDATIONS FOR FUTURE PRACTICE AND POLICY DEVELOPMENT

1.0 INTRODUCTION

As biodiversity continues to decline at accelerating rates globally, climate change consequently poses multifaceted threats to natural ecosystem succession, the survival of countless plant and animal species, and to human health and well-being (Bretzel 2016; Egoh et al. 2021; Lehmann 2021). It is within this context that urban rewilding emerges as a progressive, hope-filled, and transformative approach to landscape tending and care, acting as a tangible response to conserving and restoring biodiversity across urban and rural regions (Goddard 2010; Toit et al. 2019; Lehmann 2021). Landscape design approaches that boast a more rewilded approach to support biodiversity have increased over the last two decades, with a rise in strategies including, but not limited to: rewilded meadows, naturalized lawns, pollinator patches, and habitat gardens, amongst others (ASLA 2024; Lister et al. 2024). In many cases, these efforts adopt a rewilding ethos with aims to achieve "the self-reorganization or regeneration of wildness in an ecologically degraded landscape with minimal ongoing intervention" (Toit et al. 2019: 2468).

Aligned with other scientific literature, this perspective on rewilding emphasizes the importance of ecosystemic self-regulation and the degree of human intervention, particularly as it relies on reduced but ongoing maintenance, control or stewardship of the land (Gammon 2018; Pettorelli et al. 2018; Lehmann 2021; Hirschlag 2025). Within this context, control is a defining feature of even the wildest rewilded gardens, requiring human interference through acts of landscape tending, planning, and care to foster a greater sense of naturalness (Toni and Duinker 2015; Pettorelli et al. 2018; Diogo 2019). Coined by Nassauer (1995) as 'cues to care,' these actions are taken by humans to indicate a landscape is well cared for, while also meeting social and cultural maintenance expectations, by providing visual cues to the public that exemplify ongoing but reduced maintenance (e.g., infrequently trimmed plants rather than intensively mowed, defined edges and paths, intentional selection of native and/or ecologically-beneficial plant species, etc.) (Pettorelli et al. 2018; Hostetler 2021). By maintaining human intervention and emphasizing intention to support natural ecosystem processes, these actions differentiate urban rewilding efforts from neglect or abandonment - a common misconception of rewilding. In fact, recognizing the deep anthropogenic cultural connections of biodiversity on lands that are characterized as "wild" or "natural," is essential to addressing the biodiversity crisis in cities (Gauthier 2021; Hoffman 2021).

Although there are a range of terms used to describe approaches for enhancing biodiversity and ecological health, albeit at varying scales, intent, and context (e.g., naturescaping, naturalization, meadowscaping, etc.), this discussion adopts the vernacular term "rewilding" as it has gained increasing traction in contemporary discourse and popular media alike (e.g., Toit et al. 2019; Lehmann 2021; Russo et al. 2025; Schulte 2022). Even so, many scholars have noted the conflated information and debate over what urban rewilding means in the scientific literature (e.g., Gammon 2018; Schulte to Bühne et al. 2022; Russo et al. 2025). To further provide a more comprehensive understanding, it is useful to position rewilding relative to restoration. Both share the common goal of recovering biodiversity and are reliant on human direction to facilitate the qualities of wildness – here meaning spontaneously occurring species

and their communities. However, restoration tends to be more management focused in application, looking back to past conditions as it generally "implies returning something to its former condition or state" (Toit et al. 2019: 2468). Used in this context, restoration is distinct from rewilding. Seen as a more forward-looking, future-oriented and adaptive approach, rewilding is focused on ecological processes such as self-organization and emergence, along with regenerative intervention to improve urban biodiversity and ecological resilience (Pettorelli et al. 2018; Toit et al. 2019). Notably, Laura Martin, as an environmental historian, adopts a historical and arguably more nuanced perspective on restoration, positioning it as a "third space" in between static preservation of an idealized state, and utilitarian management-focused conservation, in which restoration is relational, focused on restoring "biotic relationships among species" (Martin 2022: 8).

Research increasingly supports the use of native plants to enhance the quality of urban spaces and nurture the ecology of cities, increasing critical habitat, boosting higher levels of genetic diversity, as well as a greater provisioning of ecosystem services, when compared to non-native plants (Toni and Duinker 2015; Buckley 2022; Tartaglia and Aronson 2024). This evidence suggests that native plants are not only a strategic tool for ecological recovery but are also a necessity to achieve large scale biodiversity goals due to their well-documented positive effects (e.g., on abundance, richness, composition, and diversity), all the while reconnecting critical biodiversity corridors (Tartaglia and Aronson 2024). In this context, restoration emphasizes the return of native species to more closely replicate and foster ecological communities and processes that are reflective of historic regional biota to return an ecosystem to an idealized state (Toni and Duinker 2015). By contrast, rewilding supports urban biodiversity by fostering naturalization as a process (rather than an endpoint), and although it prioritizes native plants, it may include both native and non-native species to establish a balanced ecological community (Gammon 2018; Toit et al. 2019). Indeed, a diverse palette of "both/and" native and non-native species is widely accepted and practiced in contemporary landscape architecture, some of which in fact embraces hybridity and novelty of emerging urban species in ecological design (see the work of Stoss Landscape Urbanism, CCxA, Michel Desvigne, West 8, and Public Work among many others, for examples).

Given the impacts of the interlinked planetary crises of biodiversity loss and climate change, international, national and sub-regional governments have made commitments to the recovery of biodiversity. The most recent of these global responses is the Kunming-Montreal Global Biodiversity Framework (also referred to as the 30x30 agreement), which stands out for its ambitious target to conserve 30% of the planet's land and oceans by 2030, and represents an unprecedented level of international agreement for conservation (Boran and Pettorelli 2024; Secretariat of the Convention on Biological Diversity 2024). These crises – now more commonly called the polycrisis (Lawrence et al. 2024) – transcend the jurisdiction of any single government, and necessitate coordinated action across federal, provincial and municipal boundaries to achieve this commitment (United Nations 2019; Kay et al. 2021; Panlasigui et al. 2021; Wallace-Wells 2022; Boran and Pettorelli 2024). With growing anthropogenic pressures, urban rewilding presents an opportunity for ecosystem conservation and environmental stewardship, to increase climate-resilience and the capacity for nature in cities by reorganizing or regenerating ecosystems (Toit et al. 2019; Lehmann 2021; Schulte to Bühne et al. 2022).

Urbanization has long been recognized for creating fragmented habitats, exacerbating challenges including the urban heat island effect, reducing landscape connectivity and negatively affecting biodiversity (Goddard et al. 2010; Bretzel 2016; Kay et al. 2021; Cooper et al. 2021; Lehmann 2021). As urban areas continue to expand to accommodate the growing global human population, simultaneously further reducing natural habitat for wildlife, the urgency for integrated wildlife-inclusive design is substantial (Kay et al. 2021). Yet, despite having little to no ecological benefits, lawns occupy more than 70% of all green open spaces in cities (Ignatieva et al. 2015), with private lands particularly making up a large portion of the urban matrix (Goddard et al. 2010). It should be emphasized, however, scholars have highlighted that dominant urban analyses often neglect to include vegetation on private lands, such as those surrounding buildings, including private gardens, front yards, and backyards (Hasse et al. 2019). Of the information that does exist, across the US for instance, more than 70% of land is held in private ownership (Ciuzio et al. 2015), with 23% of the country's urban land area specifically lawn coverage (Robbins and Birkenholtz 2003; Ignatieva et a. 2015). In the Canadian context, these findings are comparable, with 68% of vacant land in the Toronto CMA (Census Metropolitan Area) for example, privately held (Scott et al. 2025). Furthermore, recent studies (Haase et al. 2019) have found that these areas can be equal to 40% of the amount of public green space, making private yards and gardens essential for accurate urban-spatial evaluations (Haase et al. 2019, Wellmann 2020). This recognition and distribution of land tenure presents a significant opportunity to mitigate the anthropogenic socio-environmental impacts of urbanization by advancing rewilding initiatives on private yards and gardens to connect larger urban ecological networks and benefit human well-being by nurturing human-nature relations (Goddard et al. 2010; Superfisky 2023; Jamil et al. 2024; Lehmann 2021; Russo et al. 2025).

Despite the well-recognized benefits of rewilding, there exists ongoing conflict notably at the municipal scale between municipal-wide environmental goals, the bylaws that regulate landscaping on private property, and the freedom of individuals to cultivate support for nature through rewilding efforts in their garden (Asif et al. 2024; Lister et al. 2024). As emphasized in Superfisky (2023) municipal governments are uniquely positioned to support biodiversity and habitat connectivity on both public and private lands, to ensure cohesion in managing urban ecosystems, thereby supporting urban rewilding and increasing climate resilience in cities. For many North American municipalities, this has resulted in policy reforms and advancing environmental strategies, through the revision of zoning codes, ordinances, and bylaws to better support biodiversity, and encourage urban rewilding and naturalization efforts (as discussed further in this paper).

This research centers on a case-study in Toronto, Canada that is reflective of a growing number of private property stewards and owners engaged in urban rewilding initiatives who find themselves at odds with municipal bylaws. The Hillcrest Meadow is a rewilded habitat garden in a west-midtown neighbourhood in Toronto. In August 2020, the City of Toronto ordered the garden to be cut down, charging the owners with a violation of Toronto's *Long Grass and Weeds Bylaw* (as it was then known), *Chapter 489 of the City's Municipal Code* (City of Toronto 2022). This case is exemplary of many others across North America, and served as the catalyst for the Bylaws for Biodiversity (2021-2025) (B4BD) research project initiated by the Ecological Design Lab at Toronto Metropolitan University. Initially undertaken in response to the Notice of Violation served to the owners of the Hillcrest Meadow, the B4BD research project revealed a

larger issue of prohibitive zoning regulations through bylaws or ordinances, along with enforcement policies that effectively obstruct rewilding, serving as obstacles to urban biodiversity recovery in gardens and landscaping on private property. Such policies ironically contradict municipal-led rewilding initiatives on public property. As a case study that reveals this discrepancy, the Hillcrest Meadow illustrates the issues of municipal property maintenance bylaws and enforcement actions – and specifically, how in practice they can be weaponized as barriers to biodiversity and the cultivation of rewilded gardens on private property. This study draws from a combination of relevant sub-projects of the B4BD research that emerged from the Hillcrest Meadow case, developed through policy analysis, conversations and interviews with practitioners (including, but not limited to, environmental lawyers, policy planners, environmental advocates) and subject matter experts, in addition to research insights. The paper concludes by synthesizing the key findings into practical, evidence-based recommendations to inform future ecological planning practice and environmentally-supportive policy development.

2. 0 THE HILLCREST MEADOW AND HABITAT GARDEN



Figure 1a: Wild-flowers and grasses including black-eyed susan's (*Rudbeckia hirta*) and goldenrod (*Solidago canadensis*) fill the Hillcrest Meadow (Photograph: L. Johnson 2020).

The Hillcrest Meadow is located on a south-facing corner, a hilltop yard with a slope greater than 30% in some areas; the front and back gardens were both designed by the owners and cultivated intentionally. The lot is divided into a naturalized meadow in the front (Fig. 1a), and a more formal native perennial and shrub garden surrounding a terraced patio in the backyard (Fig. 1b). The meadow consists of perennial flowering plants (primarily forbs with some native grass

species) interspersed by native and ornamental trees and shrubs (Fig. 1c). The landscape was naturalized intentionally from a former ornamental lawn to include native pollinator beds and a shade and rain garden, designed and cultivated to support urban biodiversity, including pollinating and other insects (Fig. 1d and 1e), resident and migrating birds, small native mammals such as rabbits, groundhogs, and squirrels, as well as amphibian species (e.g., American toads).





Figure 1b (left) and Figure 1c (right): The Hillcrest Meadow has been carefully designed with patio seating surrounded by a curated selection of native and non-native plants (left), (Photograph: N.M. Lister 2024) including red and white clover (*Trifolium* Spp.), daisies (*Bellis perennis*) and a variety of other wildflowers (right). (Photograph: N.M. Lister 2023).





Figure 1d (left) and Figure 1e (right): Critical and declining pollinator insects such as bumblebees (*Bombus* Spp.) (left) and monarch butterflies (*Danaus plexippus*) are frequently observed at the Hillcrest Meadow, which provides essential nectar through a selection of native plants including asters (*Aster* spp.), goldenrod (*Solidago canadensis*), and staghorn sumac (*Rhus typhina*) (right). (Photograph: N.M. Lister 2023).

Blooming from April to October, the garden is characterized by an understory of changing colour and texture, punctuated by small fruit trees, such as Canada redbud (*Cercis canadensis*), nannyberry (*Viburnum lentago*), chokecherries (*Prunus virginiana*) and sumac (*Rhus typhina*). The garden's layout deliberately incorporates open areas that stand in full sunlight, as well as areas along the perimeter of dappled shade, offered by an overstory of red and silver maples (*Acer rubrum* and *Acer saccharinum*), burr oaks (*Quercus macrocarpa*), and a single mature red oak (*Quercus rubra*). Throughout the garden, ecologically-informed garden signage (Fig. 1f and Fig. 1g) serves as an education tool to inform community members of the gardeners' intentions and the associated environmental benefits of the garden.



Figure 1f (left) and Figure 1g (right): The garden is interpreted with educational, ecologically-informed signage, developed by S. Careri, Lab Manager of the Ecological Design Lab (Photograph: N.M. Lister 2024).

Absent from this rewilded landscape is a neatly trimmed lawn that would have required more intensive maintenance in the form of chemical control, leaf-blowing, and regular watering. Instead, fallen leaves are left to hold soil moisture, provide a microhabitat for overwintering insect species, and to slowly decompose on their own, adding vital nutrients back to the soil. This 'rambunctious garden' (in the style described by Marris 2011) exemplifies an intentional urban rewilding project, designed chaos, from which seasonal order emerges. The mosaic is composed of adopted plants from the local seed swap and end-of-season sale bins, donations from friends, as well as spontaneous appearances from seeds dispersed by the wind and passing birds. For instance, the garden is home to a recovered rose shrub (*Rosa spp.*) excavated from the foundation, coneflowers (*Echinacea purpurea*) from a friend's yard, and asters (*Aster* spp.) rescued from the roadside, all of which are planted purposefully.

This rewilded garden also serves as a stormwater management system, ecologically designed to help with water retention and filtration, holding stormwater and controlling runoff (Lister and Careri 2024). The homeowner's intentional approach is significant, and it reflects human intervention for the goal of biodiversity recovery, cultivation of relations among plants, and stewardship of the land and water. This recognition is essential to the identification of this rewilded landscape as a garden, reinforcing it as a purposeful place, not as an abandoned space that is without maintenance, care or design. Intention can vary across rewilded landscapes, as they can be cultivated to support a variety of overlapping functions (Lister et al. 2024). For example, a garden may serve to manage urban stormwater (e.g., bio-retention, increase filtration, mitigate urban flooding, etc.), enhance urban habitat for pollinators and other small urban wildlife species, support urban food production, or a combination thereof. In all cases, the garden's design is inherent and emerges as a response to a condition or problem (in function), which leads to deliberate choices (in form and design).

2.1. The Violation Notice: Chapter 489 Of Toronto's Municipal Code

A 'healthy' garden is defined as one which "touches the land lightly… (and) includes a diverse collection of plants… native and non-native… well-suited to the weather, soils, and exposure…(and) attract(s) wildlife" (Norris and Mackey 2021: 19). In this context, the Hillcrest Meadow is a healthy yard, a habitat for more-than-humans; it might also be considered a 'cosmopolitan ecology' – an ecosystem emerging and evolving from what was here and what has arrived (Del Tredici 2014). Importantly, the garden is also an example of design activism, using a diversity of plants as a small-scale but critical adaptation to climate change through building resilience with biodiversity (Lister and Careri 2024). For the local community, the garden also represents opportunities for teaching and respite, frequented by neighbourhood residents and passers-by who use the habitat logs (Fig. 1h and Fig. 1i) as informal seating to enjoy a quiet moment surrounded by nature within the metropolitan fabric of Toronto (Lister and Careri 2024).



Figure 1h (left) and Figure 1i (right): Fallen logs left in the garden nourish the soil, create pollinator habitat and seating for passersby. (Photograph: N.M. Lister 2023).

In August 2020, the City of Toronto served the homeowner of the Hillcrest Meadow with a violation notice under *Chapter 489 of Toronto's Municipal Code* (City of Toronto 2020), then known as the *Long Grass and Weeds Property Standards*, ordering the garden to be cut without regard to the numerous ecological and social benefits it provided. At the time of the violation notice in 2020, the bylaw stated that "grass, weeds and vegetation" cannot be taller than 20 centimeters, and "weeds" and "grass" were undefined. The absence of clear definitions for these terms, in combination with the fact that the enforcement process of these bylaws is complaint-driven, has proven problematic. With no objective standard for assessment, enforcement officers rely on personal aesthetic preferences, and thus the enforcement process is effectively arbitrary (Donnelly 2020). Furthermore, at the time the violation notice was served, the bylaw included an exemption for which homeowners could apply, and which would permit the cultivation of a rewilded garden. However, this requirement for an exemption effectively serves as a barrier to naturalization, discouraging the stewardship of ecologically-designed and planted gardens (or any landscape style which differs from traditional turfgrass). By requiring a public application and review, which makes the homeowners' name and address public, the exemption requirement demands that homeowners defend and justify their plantings in a process that is subjective, intrusive, onerous, and costly (Donnelly 2020).

Moreover, subjective terms like "overgrowth," "excessive," "untidy" and "messy" are used to describe the appearance of gardens that are not compliant and remain common across Ontario policies despite two Superior Court ruling that limit their use (see, Adams et al., 2021a, and Lister et al., 2024, for more example bylaws). In Caledon (Town) v. Mik (1995), the Court ruled that municipal powers under the *Municipal Act* do not extend to the regulation of appearance or aesthetics. Furthermore, in Bell v. Toronto (City of) (1996) the Court recognized that the freedom of expression, which is constitutionally protected under the *Canadian Charter of Rights and Freedoms*, extends to protect expressions of environmental values and beliefs reflected in rewilded gardens (Damstra and French 2022a; 2022b). However, the Court has also recognized limits to individuals' rights to freedom of expression, where matters of public health and safety take priority (e.g., Counter v. Toronto (City of) 2002; Ruck v. Mississauga (City of) 2024) (for more on Counter v. Toronto (Fig. 2a and Fig. 2b), see Johnson 2023 and Weston 2024). These legal precedents nevertheless offer clear guidance: in Canada, following the *Charter of Rights and Freedoms* to establish fair, evidence-based rules for enforcement, municipal bylaws must be restricted to and focused on matters of health and safety, and must avoid references to aesthetic terms that direct subjective appearance.




Figure 2a (left) and Figure 2b (right): Douglas Counter's front yard garden (left), designed to filter and infiltrate stormwater on the public city-owned boulevard (right) using a selection of propagated local plants. Counter's court case affirmed the right of gardeners to express their environmental beliefs on the public right of way, subject only to restrictions of health and safety (Johnson 2023). (Photograph: D. Counter 2023).

Upon receiving the Notice of Violation, the homeowner of the Hillcrest Meadow asked the enforcement officer to clarify which "weeds" were to be cut and why, and to identify specifically the offending plants. The enforcement officer could not provide a response, neither identifying any offending plants in the garden nor specifying any risks posed. Rather, the homeowners were given one week to comply with the order before forced mowing of the property would occur, with the cost to be billed to the property owner, and a possible fine of up to CAD $5,000. As a result, the owners of the Hillcrest Meadow along with supporters and advocates, issued a legal challenge to the City of Toronto in late 2020 to update the bylaw.

2.2. Bylaw Reform Takes Root

The Hillcrest Meadow case did not go to Court. Instead, following a public advocacy campaign and legal influence, 13 subject matter experts, including the property owners, supporters, and advocates were invited to advise the City on bylaw reform, to better align the City of Toronto's property standards with the City's otherwise progressive policies that support biodiversity and climate resilience on public lands. An ecologically-informed model bylaw (Murphy 2021) was drafted to aid and inform the City of Toronto (and other municipalities) on how to amend their property standards bylaws, presenting revisions to the *Municipal Code, Chapter 489, Grass and Weeds*, along with recommendations informed through the analysis of various case studies, used to identify solutions that exist within policy frameworks comparable to that of the City of Toronto (Murphy 2021). The model bylaw was incorporated into the 2021 amendment made to the bylaw, removing both the natural garden exemption requirement for rewilded gardens, as well as the references to "weeds" and aesthetic appearance, clarifying the restrictions on height limits applied to turfgrass vegetation, and defining turfgrass. Notably, the amended bylaw also provides a short list of 10 local prohibited plants, all of which are known to pose risks to ecological or human health. The prohibited plants were selected from and remain on the *Ontario Schedule of noxious weeds* (2022) in the *Ontario Weed Control Act* (1990), ensuring legal conformity. The reformed bylaw was passed by Council in July 2021 and took effect in January

2022. As the country's largest municipality, Toronto set a precedent for bylaw reform in this context. Since then, the updated bylaw has been copied, adapted and circulated to many smaller Canadian municipalities (e.g., Smiths Falls, Thunder Bay, Prince Edward County, London, Lunenburg, and others), who are enacting similar rules, embracing diversity and cultivating care for their communities through bylaws for - rather than in spite of - biodiversity (see Ecological Design Lab, 2024, *Precedents in Bylaw Reform in Canadian Municipalities*, for more examples).

Efforts to update and align enforcement procedures with the new bylaw have been less successful. The subject matter experts had recommended that the burden of responsibility be placed on complainants to identify specifically the problem of concern and the plants that were its source. In doing so, they suggested specific mechanisms for screening complaints to ensure their legitimacy: for example, an online complaint form was proposed with drop-down, pre-filled menus from which specific problems and prohibited plants could be selected before a complaint could be investigated. Additionally, it was recommended that enforcement officers receive biodiversity-focused education and training (e.g., using visual aids or online identification applications and softwares, such as iNaturalist) on the identification of the prohibited listed plants, and on the health and safety risks they pose. To date, none of these recommendations have been adopted; Toronto enforcement officers remain largely untrained in plant identification and continue to respond to complaints related to appearance, despite the updated bylaw.

3.0. THE BYLAWS FOR BIODIVERSITY PROJECT

The Hillcrest Meadow is a case exemplary of many others across North America, and served as the catalyst for the Bylaws for Biodiversity (2021-2025) (B4BD) research project initiated and undertaken by the Ecological Design Lab at Toronto Metropolitan University. Through public education campaigns, partnering with allied organizations, and advocacy, the B4BD project seeks to empower community members, and champions for the revision of outdated, colonially-rooted weeds and grass bylaws, to better protect and promote biodiversity across public and private lands. To do so, the project adopts a top-down policy development, in combination with a bottom-up community action approach.

Since 2021, this research has expanded over a series of component projects, and through the development of public resources to advise policy makers on appropriate action that is both environmentally-and legally-aligned, and to educate community members on environmental stewardship to cultivate support for nature. Of the many resources developed since then, key documents include: the *Bylaws for Biodiversity Report: Re-Modelling City of Toronto's Municipal Code Chapter 489, Grass and Weeds* (Murphy 2021a) and supplementary *Bylaws for Biodiversity: Model bylaw* (Murphy 2021b), used by the Toronto Staff to revise the *Toronto Municipal Code Chapter 489, Turffgrass and Prohibited Plants*; the *Urban Biodiversity Report: Cultivation Support through Municipal Codes* (Adams et al. 2021a), comparing the policies of 15 north American partners cities of the Biophilic Cities Network, and supplementary *Toolkit for Local Governments: to Enhance Biodiversity in Private Property* (Adams et al. 2021b); and most recently, the *Bylaws for Biodiversity Report - Barriers and Opportunities for Naturalized Gardens on Private Property (A Review of Municipal Policies, Codes and Enforcement Practices in Canada)* (Lister at al. 2024), examining the current public policy landscape in Canada with respect to biodiversity strategies and regulation of gardens and landscaping on

private property, and supplementary *Bylaws for Biodiversity: Collaborative Toolkit for Municipalities* (Asif et al. 2024), to advise municipal staff on appropriate legal action, and equip communities members with information to defend a rewilded garden from regulatory overreach.

In July 2024, the B4BD project gained national recognition when the EDL partnered with the Canadian Society of Landscape Architects (CSLA), the Canadian Wildlife Federation (CWF), the David Suzuki Foundation (DSF), and renowned author and environmental advocate Lorraine Johnson to Call for Action. Together, these organizations developed an open letter to municipalities advocating for bylaw reform to support habitat gardening, which has been sent to municipal staff, elected officials and related associations across Canada in support of bylaw reform. To advance the conversation, these organizations then invited municipal staff and elected officials across Canada to engage in a national conversation on property standards bylaw reform in support of habitat gardens and biodiversity. In November 2024, over 350 Canadian municipal representatives connected to learn from the panel of experts, and to openly discuss and share experiences with effective bylaw reform.

3.1 Beyond Ontario: Bylaws and Enforcement Procedures as Barriers to Biodiversity

Beyond Ontario, biodiversity-hindering bylaws stubbornly persist across North American cities, some of which are (ironically) members of the Biophilic Cities Network (BCN) (e.g., San Francisco, California, Washington D.C., and Edmonton, Alberta) - an initiative of international cities that have committed to supporting biodiversity through biophilic design, or designing with nature. As part of the B4BD (2021-2025) project, the Urban Biodiversity study investigated 15 North American member cities of the BCN; their municipal codes and bylaws were analyzed to determine if and how municipal policies and codes either support or obstruct biodiversity recovery generally, and rewilding initiatives specifically (Adams et al. 2021a). This revealed a patchwork of requirements that continue to hinder biodiversity, combined with inconsistent municipal enforcement mechanisms, which undermine the significance of rewilding on private yards on a greater scale (Adams et al. 2021a).

The B4BD (2021-2025) project further illustrated that a compounding factor to the persistence of biodiversity-inhibiting bylaws is the bylaw enforcement process, in that it is complaint-driven, anonymous, and arbitrary (Adams et al. 2021a; Lister et al. 2024). Effectively, this means that anyone can report a suspected violation and do so anonymously, and little to no defensible evidence is needed before an enforcement officer is sent to investigate. Unlike other areas of law, the burden of proof is placed on the property owner to defend their garden practices. Bylaw enforcement officers respond to many aspects of municipal regulation, and enforcement action is left to the discretion and judgement of the attending officer. Yet, in the context of property maintenance bylaws, as exemplified in the Hillcrest Meadow case, they often lack adequate training to correctly identify plants and therefore cannot enforce the regulation in a way that is legally compliant.

By implication, the City of Toronto's (and other municipalities') property standards bylaws normalize the mown and homogenous lawn as the standard for yards and gardens on private property. Maintenance requires mowing undefined "grasses" and the removal of "weeds," yet there are more than 12,000 known species of graminoids (the family to which

turfgrasses belong), and "weeds" is neither a scientific nor specific term. A weed is simply an undesired plant growing in the wrong place, sometimes also referred to as a "wild urban plant" (Del Tredici 2014). To this effect, North American municipal bylaws outlaw biodiversity, as most of earth's millions of plant species and their "messy" habitats grow naturally higher than 20 centimetres or 8 inches, which is the rule against which allowable lawn height or turfgrass is regulated. To exemplify using the Hillcrest Meadow case, both the goldenrod (*Solidago canadensis*) and the dandelions (*Taraxacum officinale*), were specifically selected by the homeowner for the vital nectar they provide to native bees in spring, yet municipal enforcement staff (and anonymous neighbours) required they be removed based on their appearance. Regulation requires definition, and enforcement requires clarity and specificity, and Toronto's 2020 bylaw provided neither. Heightening this irony, the Hillcrest Meadow violation occurred in 2020, just one year after an international panel of expert ecologists declared a biodiversity crisis that is exacerbated by and inseparable from the climate crisis (IPBES 2019), and during the global coronavirus pandemic - a time when the only place deemed safe for people to gather was at a distance, outdoors, often at home in a garden.

3.2 Unsettling the Lawn

The lawn is the epitome of order and control. Much has been written on this, along with its colonial roots (e.g., Bormann et al. 2001; Kimmerer 2014; Ignatieva 2015). As a symbol of leisure and wealth introduced from Britain, the clean-shaven virtues of the lawn were extolled and emulated by the American elite from Jefferson to Olmstead, and later, when post-war became integral to the suburban dream (Jenkins 1999; Robbins 2012). As the largest irrigated (and invasive) crop in North America, the lawn produces neither food nor flowers. A heavy consumer of water, pesticides, fertilizers and money, the lawn is guarded by a powerful lobby, with the lawn care industry worth billions (Jenkins 1999; Robbins 2012; Harris et al. 2013; Watson et al. 2020). The lawn remains a powerful and entrenched symbol of control in North America, yet a paradox given the precarity of the entangled biodiversity and climate crises, raising the question of why we continue to stifle the diversity and resilience of life itself, with a monoculture never allowed to flower or spread its seed? The answer would appear to lie in an unrelenting fixation on the lawn, as a trope for order coupled with a tendency toward nostalgia for post-war suburbia and the promise of stability and prosperity. These influences create a place to police one's neighbours and insist on the cleanliness of conformity to a shared ideal, further fueled with the righteousness of "weeding out" the "non-natives" and "invasive aliens" (Green 2014). Bolstered by the fact that vegetation has long been cited as a reflection of social hierarchy, societal changes in culture, and land ownership (Jenkins 1999; Kimmerer 2013; Robbins 2015).

The human attachment to notions of control over nature, also manifests itself at a time where global ecological systems are increasingly unstable and many of Earth's species are driven towards extinction as a result of the changing planet and a climate far from normal. In many cases, individuals are pressured to adhere to the social norm, which affects their willingness to adopt landscape gardening practices different from the dominant style in the neighbourhood (Goddard et al. 2013). These perceptions to uphold order and maintenance create barriers to the cultivation of rewilded landscapes and are further reinforced by concerns for safety and the aversion to wildlife, such as insects and rodents (Soga et al. 2020; Zheng et al. 2022; Clarke et al.

2023). The symbolism of the lawn with the rise of growing political, economic and ecological instability is not a conflation (Robbins 2012). Property standards bylaws offer an illusion of stability at a time when human beings need more than ever to embrace biodiversity in all its messy (and sometimes chaotic) complexity, to recover resilience.

Often, property owners who are issued a Notice of Violation or charged with a bylaw infraction, are "outed" and judged in the same language used to attack their gardens. In the Hillcrest Meadow case, the owners were labelled "lazy" and the garden a "mess" (Bozikovic 2020). Rewilding gardeners are perceived as fringe environmentalists, or "preachy eco-evangelists" (Day 2024) who would impose disorder and naïve ideals on others. In times of crisis, new and diverse approaches to living are needed, but the threat to normal is destabilizing. The contradiction here being that rewilding initiatives are often aligned with progressive municipal policies for public lands that support pollinators, grow native plants or manage rain where it falls, concurrently also fostering greater human and wildlife well-being. As is the case of the Hillcrest Meadow for instance, where the City of Toronto, which regulates standards for private property through its bylaws such as the aforementioned *Chapter 489 of Toronto's Municipal Code* (City of Toronto 2020), has also enacted nature-positive policies such as the *Toronto Biodiversity Strategy* (2019)*;* the *Toronto Ravine Strategy* (2017)*;* the *Green Streets Technical Guidelines* (2017)*;* the *Pollinator Protection Strategy* (2018)*;* and the *Strategic Forest Management Plan* (2013).

4.0 GAPS FROM POLICY TO PRACTICE

Unfortunately, rewilding efforts continue to be targeted with enforcement violations using outdated language that attempts to regulate aesthetics or requires blanket removal of undefined "weeds" or "grass." As a result, there remains a growing number of gardeners who continue to face legal action, forced to defend their nature-positive initiatives against municipal enforcement and bylaws. In Smiths Falls, Ontario, for instance, residents Beth and Craig Sinclair planted over 150 native species in their garden, and incorporated educational garden signage (Fig. 2c) and specific habitat features, such as dead logs and a water pond (Fig. 2e), to intentionally benefit urban wildlife (Fig. 2f, Fig. 2g, and Fig. 2h) and enhance the qualities of the ecosystem they created (Ramlakhan 2022; Wei 2023b). In fall 2021, following complaints from neighbours, the Sinclairs were ordered to remove their habitat logs, and cut their "grass and weeds" to 20 centimetres or less (Fig. 2b), to be in compliance with the Town's Property Standards bylaw. The Sinclairs decided to appeal the order, and the issue was brought forth to municipal council, where the councilors upheld the wording of the outdated Property Standards Bylaw (Ramlakhan 2022; Weir 2022; Rosano 2023). In May 2022, after this decision was later appealed to the Ontario Superior Court, the Town of Smiths Falls rescinded the original order, and compensated the Sinclairs for their legal fees (Harford 2022; Lawless 2022; Ramlakhan 2022) (See, Johnson and Careri 2024a for case summary).




Figure 2c (left) and Figure 2d (right): Craig Sinclair's front yard garden features over 150 native species, structural habitat elements and educational garden signage (left). (Photograph: K. Sinclair 2025). Goldenrod (*Solidago canadensis*) flowers along the Sinclair's front curb ruled in violation of the bylaw (right). (Photograph: C. Sinclair 2022).

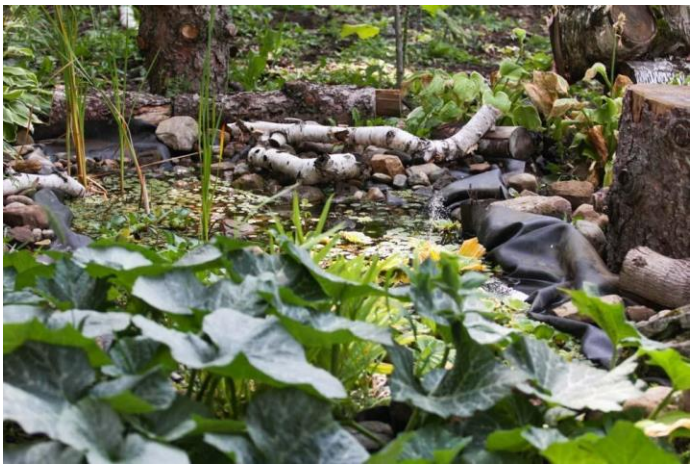



Figure 2e (left) and Figure 2f (right): A constructed garden pond (left) featuring native vegetation and structural elements to support urban biodiversity, particularly amphibian species such as the northern leopard frog (*Lithobates pipiens*) (right). (Photograph: C. Sinclair 2021).

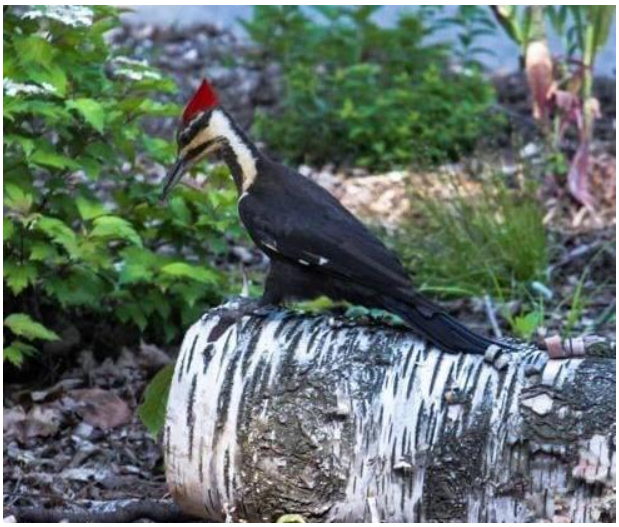



Figure 2g (left) and Figure 2h (right): The Sinclair's garden provides refuge and habitat to a variety of urban species - A woodpecker on a habitat log (left) and a swallowtail butterfly (*Papilio* Spp.) feeding on milkweed (*Asclepias incarnata*) (right). (Photograph: C. Sinclair 2022).

That same year, in the City of Burlington, Ontario, resident Karen Barnes, received a Notice of Violation from the City in November 2022, that her rewilded garden (Fig. 3a and Fig 3b) - which she had been cultivating for over a decade - needed to be cut to 20 centimetres to conform to the City's Property Standards Bylaw (Pagliaro 2023). Barnes was charged with a CAD $10,000 fine for failure to comply. While the order was under appeal, Barnes' garden was forcibly mowed by municipal employees in June 2023 (Fig. 3c and Fig. 3d) (Johnson and Lister 2023; Mallick 2023; Pagliaro 2023) (See, Johnson and Careri 2024b for case summary). More recently, Wolf Ruck, of Mississauga, Ontario, experienced a similar fate, where in June 2024, his front yard rewilded garden was forcibly mowed down for the second time after a Notice of Violation was served (MacDiarmid 2024; Yadav 2025). These conflicts are not exclusive to homeowners: condominiums also account for cases. Catherine Goddard of Guelph, Ontario, is a recent illustration of such disputes. Despite years without issues, expert advice confirming the gardens ecological value, as well as a formal plan submitted and previously approval under a Section 98 Agreement of the *Ontario Condominium Act* (1998), in January 2025 the Condo Board demanded Goddard return the front-facing areas of her rewilded garden to manicured lawn and reduce the rear naturalized area by 50% (Donnelly 2025).




Figure 3a (left) and Figure 3b (right): Native asters (*Aster* spp.), goldenrod (*Solidago canadensis*) and milkweed (*Asclepias syriaca*) were among the plants growing in Karen Barnes' garden. (Photograph: K. Barnes 2023).




Figure 3c (left) and Figure 3d (right): Karen Barnes' garden in autumn 2022 (left) before the garden was mowed down by the City of Burlington on June 20, 2023 (right). (Photograph: K. Barnes 2022; 2023).

Municipalities that have reformed their bylaws and implemented progressive environmental policies persist with inconsistent enforcement practices. A case in point, again, is the City of Toronto, where enforcement practices using the language of the old bylaw persist, despite the revisions made to *Chapter 489 of Toronto's Municipal Code* (City of Toronto 2020), that followed the Hillcrest Meadow volitation. For instance, Eric Davis, a biologist well known for his cultivation of genetically-adapted heritage trees in Toronto, was issued a Notice of Violation in June 2024 for the mini-forest he planted in his front yard, and was required to remove a 100-year-old red oak log, which was salvaged with permission from the City's Forestry Facility (Fig. 3e and Fig 3f). For over a decade, Davies has been collecting and propagating acorns from the city's oldest oak trees, donating young trees to community projects, and using his garden to educate the public (Fig. 3g) and preserve the genetic adaptations to local conditions

that these oak trees contain (Johnson 2024). Davis was ordered to cut down native white and red oak (*Quercus alba* and *Quercus Rubra*) saplings and dozens of native perennials he had grown to regenerate Toronto's oak ecosystem (Fig 3h), despite there being no evidence that the planting interfered with sightlines or obstructed sidewalk passage (Johnson 2024; Hurley 2024).




Figure 3e (left) and Figure 3f (right): Eric Davies (left) sits on the 100-year-old red oak (*Quercus rubra*) log salvaged with permission from the City's Forestry Facility. The log was deemed an obstruction and required to be removed by the City of Toronto in the 2024 Notice of Violation, also ordering the vegetation to be cut to below 0.85 metres (Johnson 2024). (Photograph: NM Lister 2024).




Figure 3g (left) and Figure 3h (right): Eric Davies (left) leading a garden tour, which features native white oak (*Quercus alba*) and red oak (*Quercus rubra*) saplings alongside perennial wildlife flowers, intentionally cultivated to regenerate the local oak ecosystem in Toronto. (Photograph: NM Lister 2024).

In the US, similar cases have resulted in court rulings that protect the rights of homeowners to rewild their yards for biodiversity (e.g., Buckley and Andrew 2022). For example, Janet and Jeff Crouch, residents of Columbia, Maryland, received a Notice to Cease and Desist from their Homeowners Association in 2017, demanding they replace their entire native plant garden with traditional turfgrass (Buckley and Andrew 2022; Oberg 2022). The

Crouches, who had been cultivating their rewilded garden for over two decades, resisted. Their actions set a precedent, contributing to the passage of Maryland's *House Bill 322*, three years later in October 2021, prohibiting HOAs from requiring homeowners in the state to have turfgrass (Oberg 2022). During this time - and ironically just over the Stateline - Sara Weaner and her husband Evan Cooper, residents of Pennsylvania, began rewilding their own front lawn. Unlike the Crouches, however, Sara's garden garnered positive media attention, concurrent to the launch of the Pennsylvania Department of Natural Resources Lawn to Habitat Program, intended to help finance private residential rewilding projects (Hirchlag 2025). These gardens are not anomalies and although programs such as Pennsylvania's make it clear that municipalities are moving to include more biodiversity-supportive ordinances, infraction cases continue to be documented with growing media coverage on the issue (e.g, Ramlakhan 2022; Wei 2023a; Longwell 2024; Hirchlag 2025).

5.0 RECOMMENDATIONS FOR PRACTICE

North American municipalities are facing numerous pressures, which include mitigating risks to human health and safety brought by climate change - while also contending with growing widespread housing crises - yet there are limited resources that are available to support municipal law enforcement in this regard (Lister et al. 2024). These practices revealed from the B4BD study have resulted in uncertainty in the interpretation and application of bylaws, opening municipalities to legal challenges while impeding progress to support biodiversity. It is clear that municipal bylaws and enforcement practices must be modernized to offer opportunities for learning, engagement and advocacy for biodiversity, habitat recovery and urban nature generally (Lister et al. 2024). The insights from the B4BD research have informed broad recommendations in response to the identified shortcomings, which can be adapted to each municipality's local conditions. These recommendations are a starting point to lay the groundwork for future practice, and are drawn from the findings of the aforementioned *Urban Biodiversity Report* (2021) and supplementary *Toolkit for Local Governments* (2021), as well as the *Bylaws for Biodiversity Report* (2024), and the supplementary *Collaborative Toolkit for Municipalities* (2024).

To start, municipalities must focus regulations on science-based matters of health, safety and public nuisance only. In addition to this, as opposed to enforcing arbitrary standards on the appearance or aesthetics of gardens, municipalities should promote public awareness and acceptance of alternative and more ecologically-diverse landscaping practices. Within the legal framework of property standards that regulate private property, municipalities should clearly define turfgrass, remove height limitations on vegetation, and provide a specific list of prohibited species that pose harm to health and safety. To streamline the enforcement process from the beginning, municipalities should consider adopting a system to manage and screen complaints before involving enforcement officials. Rather than relying solely on receiving verbal or emailed complaints, municipalities should consider adding an online reporting system: for example, a drop-down menu can be added to online reporting via civic websites with required fields populated with specific limited criteria for any complaint logged. Doing so will aid municipalities in prioritizing and categorizing complaints, while also ensuring that only the most urgent, relevant, and legitimate issues are pursued. The drop-down menu can also be restricted to matters of 'health and safety' which will have the effect of eliminating complaints that are

subjective, arbitrary or vague, and those that relate to appearance or aesthetic judgements such as "overgrown," "excessive," "weedy," "messy," etc.

6.0 CONCLUSION

It is clear that outdated municipal bylaws and ordinances pose significant barriers to biodiversity. Municipal codes that center on the lawn as the norm, and which obstruct rewilding initiatives on private property, contradict both global and national biodiversity goals and undermine related municipal environmental strategies (Asif et al. 2024). Across Canada and the US, municipal enforcement actions continue to target gardeners who endeavor to recover biodiversity by rewilding their yards. Continued enforcement of the lawn norm causes unnecessary conflict across communities and is compounded by emotional and often financial stress for gardeners. These punitive actions taken by municipalities through fines and forced mowing can stigmatize and marginalize those who choose to advance urban rewilding initiatives in their personal gardens. Yet, these contradictions can be overcome through the development of evidence-based bylaws and enforcement procedures, many of which are already enacted across municipalities for public lands. Biodiversity recovery is dependent on support for cultivating rich biodiverse ecosystems on both public and private lands, and is critical to the success of meeting national and international conservation biodiversity targets. Bylaw reforms *for* biodiversity require that municipalities foster connected, healthy ecosystems through a mosaic of both rewilded and cultivated landscapes. Nature-positive or biophilic cities must include *both* public parks *and* private yards and gardens to create a biodiverse network across urban ecosystems: rewilded and reconnected landscapes.

As the Hillcrest Meadow celebrates its tenth anniversary, it is just one of many gardens across the country that have been threatened by outdated municipal bylaws and arbitrary enforcement. As a rewilded garden, it is a hopeful beacon for biodiversity: in the long and slow progress of bylaw reform, it is a call to normalize urban rewilding, to celebrate habitat gardens and to challenge the dominance of "lawn order" (per Bozikovic 2020).

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