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Rhizomatic Explorations of Immigrant Growers' Sense of Belonging Through More-than-Human Relationships in a Community Garden

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ABSTRACT

Immigrant integration is often conceptualised through frameworks of belonging that emphasise individual feelings or perceived acceptance within a community. This paper complicates such linear models and human-centred interactions by foregrounding processes of belonging emerging through relational practices spanning more-than-human worlds at a community urban farm. Drawing on rhizomatic assemblages and Indigenous epistemologies that situate Land as agentive, we use ethnographic and participatory methods to highlight how growers' relationships with crops manifest agency and dynamic socio-ecological adaptations. In conclusion, we argue that processes of belonging and settlement are active negotiations that occur through placemaking relationships with the land and the immediate multispecies community. Attending to these processes provides newer possibilities for recognising the interactions between more-than-human actors and human agency to belong.

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Introduction

In light of the continuing human-led destruction of the environment, there is a need to expand notions of human mobility and resettlement through frames of entanglement with the more-than-human worlds. Recent years have seen scholarship in border and mobility studies challenge notions of human exceptionalism by drawing attention to agentic movements of rivers (Momin and Chakraborty 2025), fungi (Tsing 2015), food crops (Mullaney 2014), and other more-than-human relations to conceptualise these spaces as a dynamic network of collective encounters. A more-than-human focus disrupts the centrality of the human subject in authoring socio-political life, and further problematizes the particular imagination of the human created by Western onto-epistemologies (Ozguc and Burridge 2023). As Ozguc and Burridge (2023) argue, paying attention to more-than-human relations can help understand the heterogeneous, distributed nature of agency and provide newer directions for socio-political action. Further, it can help reframe the portrayal of immigrants and refugees as helpless figures by

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disrupting the passive stance attributed to their surroundings and the land. Describing the co-produced agency as ‘interspecies practice’ (Youatt 2020), generated by everyday encounters with more-than-human forms of life, several scholars examine how such entanglements give rise to different temporalities, attunements, and spatial configurations (Phillips 2020; Barry 2024).

In this article, using the site of a community garden cared for by immigrant gardeners, we seek to complicate the linear, unidirectional narratives of immigrant settlement. Many of the immigrant gardeners were forcibly displaced due to ongoing conflicts and geopolitical shifts. In this context, we argue that the dominant discourse of integration fails to capture the socio-spatial and ecological entanglements through which immigrant growers develop a sense of belonging by cultivating agency and meaning within communities. Building on Germinaro’s (2026) argument of spatial relations arising from embodied histories, we propose a conceptual shift away from integration as a linear process toward a rhizomatic and more-than-human understanding of immigrant belonging in community gardens. The rhizomatic conceptualisation is inspired by the multidirectionality afforded in rhizomatic assemblages, thereby intentionally complicating the causal processes underlying who is ‘out-of-place’, ‘cared-for’, or ‘rooted’. We examine how growers’ relationships with Land, plants, animals, and one another constitute a form of entangled agency using Deleuze and Guattari’s (1987) theory of the rhizome. Rather than being mere beneficiaries of integration processes, immigrant growers co-create dynamic, relational worlds where cultural memory, ecological knowledge, and social resistance are cultivated alongside food. Recent anthropological scholarship supports this process of inquiry by conceptualizing plants as historical and active agents in forming interspecies affection, and making visible the political ecologies of displacement and belonging (Alkan and Calkins 2025). By attending to these dynamics, we aim to rethink the community garden beyond the representation politics of social inclusion and recognise it as a complex field of living relations that resist straightforward instrumental logics of inclusion. The paper is organised as follows: Section 1 describes the broader context of refugee immigration in Canada, along with the mainstream metrics used to measure immigrants’ sense of belonging. Section 2 discusses our conceptual framework that situates growers and more-than-human relationships as a lens to explore entangled agencies manifesting in the community garden. Section 3 describes the methodology and data. Section 4 demonstrates findings from the interview analyses to illustrate the rhizomatic assemblages constituting growers’ relationships with more-than-humans and an evolving sense of belonging. Section 5 discusses the implications of such methodological shifts in recognising the dynamic interplay of more-than-human relationships to cast belonging as an interactionally shifting goal rather than a foregone conclusion of directed initiatives.

Refugee Resettlement in Canada

Recent decades have witnessed a significant rise in global immigration, with a large proportion of these movements driven by geopolitical instability, civil wars, genocide, and continuing effects of colonial disruption (Mavroudi and Nagel 2023). According to the United Nations High Commissioner for Refugees (UNHCR 2023), over 110 million individuals worldwide were forcibly displaced by mid-2023, a figure that is rising amidst

escalating conflicts and environmental disasters. Within the global context, Canada has been recognised as a country with progressive immigration policies and has regularly topped global rankings in refugee sponsorship. According to the Government of Canada (2023), over 400,000 permanent residents have been admitted annually between 2021 and 2025, of which a substantial percentage constitutes refugees and asylum seekers facing the challenge of rebuilding their lives in a new linguistic and socio-cultural landscape. For instance, reports indicate that refugee statistics for 2023 were 169,448, a 20.5 per cent increase from 2022 (Macrotrends n.d.).

Given the increased association of immigration with forced displacement and trauma, the process through which immigrants can foster a sense of belonging to their new setting has gained attention. In the Canadian context, a sense of belonging has been increasingly recognized as a key dimension of successful integration and features prominently in policy evaluations, public discourse, and academic research (Barrios Gomez 2021; Gyan and Chireh 2024). Traditionally, psychological studies define belonging as a fundamental human need involving the perception of being accepted and valued in interpersonal relationships or group settings (Hagerty et al. 1992; Baumeister and Leary 1995). Later critiques have, however, pointed out that such frameworks tend to underplay structural barriers and historical social inequalities (Yuval-Davis 2006). Further, an overemphasis on the feeling of belonging creates individualised narratives that don't fully account for the social politics of recognition and inclusion (Anthias 2013). Despite some attempts to complexify the notion of belonging (Hughes et al. 2021), prevailing approaches to measuring sense of belonging often draw from standardised survey instruments designed to facilitate comparison across populations and contexts. Tools such as the OECD's *Indicators of Immigrant Integration* (OECD 2018), Statistics Canada's *General Social Survey*, and the *Migrant Integration Policy Index (MIPEX)* provide quantitative trends on immigrant integration, based on variables including language proficiency, labour market participation, and perceptions of discrimination. Academic studies also often rely on Likert-scale questions such as 'I feel at home in this country' to capture subjective belonging (Baak et al. 2019). In the Canadian context, multiculturalism as a policy has existed since the 1970s, signalling a formal endorsement of the coexistence of distinct ethnic and cultural communities. However, large-scale surveys predominantly tend to measure belonging in terms of social cohesion with ethnic communities and the larger society (Reitz et al. 2010), implying an expectation of social arrangements that can accommodate common values, social identity, and civic culture built on an assimilative element of social order and control primarily borne by immigrants (Vasta 2013). While such approaches allow for generalisation and policy relevance, an over-reliance on these metrics often reduces belonging to an internal marker of wellbeing, and neglects the lived realities of how immigrants negotiate inclusion (Government of Canada 2016). The overt psychological focus also remains disconnected from the broader socio-cultural and structural conditions contributing to a sense of belonging.

Community Gardens as Sites of Immigrant Belonging: Developing a Rhizomatic Framework Grounded in More-Than-Human Relations

In this study, we aim to reframe notions of belonging and settlement by attending to the role of embodied, affective, more-than-human (Bang 2016) encounters in reconfiguring immigrants' relationships with the land and the community through gardening practices. While human connections to urban nature have been examined (Jhagroe 2024), the specific significance of these connections in the context of immigrant settlement has received less attention (Abramovic et al. 2019). As an intervention to support social cohesion, community gardens have increasingly been positioned as promising sites for immigrant integration and wellbeing, with numerous studies supporting their capacity to facilitate food cultivation, social connection, and community building (Hartwig and Mason 2016; Shostak and Guscott 2017; Tracey et al. 2020). In this framing, gardens are not merely green spaces, but civic infrastructures aimed at cultivating social capital, promoting inclusion, and supporting the settlement process. According to Glover et al. (2005), such settings afford opportunities to build social capital by enabling immigrants to form cross-cultural relationships and foster a sense of belonging. This pragmatic approach is echoed in urban policy and nonprofit programming, where community gardens are increasingly endorsed as social tools for immigrant adaptation. Other studies point to more complex, relational and resistant ways in which immigrants interact with these spaces. Community gardens and backyards can function as sites of cultural continuity, where growers cultivate traditional crops and maintain culinary practices (Saldivar-Tanaka and Krasny 2004). Jurow et al. (2016) explore the social and cultural organisation of learning through local food justice movements in immigrant neighbourhoods. Community garden spaces have also been explored as sites for developing environmental perspectives and engaging in civic action (Dutta and Chandrasekharan 2018). Scholars have also explored ways of 'desettling' conventional subject-object relationships with plants in formal settings like botanical gardens to engage urban youth of colour in more meaningful relations with the place and land (Rahm 2018). Highlighting ways in which these spaces also host pedagogies of resistance and intergenerational memory, Hondagneu-Sotelo (2014) illustrates how immigrant women develop civic leadership and grassroots organising capacities in gardens, while Ghose and Pettygrove (2014) show how these sites can challenge exclusionary urban policies by enabling marginalised groups to reclaim public space and articulate forms of participatory citizenship. Similarly, Jadallah (2025) foregrounds how BIPOC farm educators use gardens as critical pedagogical sites that draw upon cultural knowledge, address intergenerational land-based trauma, and support collective decision-making rooted in justice. These perspectives point to the need for shifting the analytic lens from integration to a process-oriented understanding of inhabitation and relational belonging derived from layered spatio-temporal logics and divergent methods of space-making (Lapina 2017). Highlighting the complexities underlying prescriptive, organised cultural encounters in community gardens, there is increasing focus on the political ecology of these spaces (Classens 2015). Additionally, land insecurity and gentrification threaten the continuity of immigrant-led gardens, which are often precariously situated within rapidly transforming urban landscapes (Cutts et al. 2017).

Attending to these complexities embedded in community gardens, we focus on the process of social emergence of the evolving agency of previously displaced people in relation to their gardening activities. Based on our proposed analytical foci, we theorise a sense of belonging as an emergent, relational process shaped by individuals' agency to reassert meaning and identity in unfamiliar geographies, which are co-constructed through dynamic interactions with more-than-human worlds. This view differs from traditional interpretations of a sense of belonging as the agentic experience of personal involvement in a system, such that they feel integral to the settings (Hagerty et al. 1992; Deci and Ryan 2000). Conventional notions of agency have long privileged an individual's ability to initiate and regulate actions intentionally (Bandura 2001). In contrast, we draw from relational theories that emphasise distributed and emergent agency that arises through the unfolding relations between bodies, histories, materials, and ecologies (Coole 2005). Latour (2014) proposed the idea of distributed agency by treating all human and non-human actants symmetrically across a network. Later theorists refined this by highlighting processual, relational connections contributing to the salience of manifested agency (Sugarman and Martin 2011). Ingold (2015), for example, rejects the static metaphor of the network and instead conceptualises the meshwork: 'The lines of the meshwork are the trails along which life is lived ... it is in the entanglement of lines, not in the connecting of points, that the mesh is constituted' (p. 81). Defining actions as 'making-in-growing' (p. 122), Ingold argues that material relations are not forms imposed upon with apriori intentions, but emerge through continual shifts in assemblages, thus denying ontological differences in categories of 'actor', 'actions' and 'acted upon'. These are likened to mobile knots in weaving that keep changing within the larger pattern. In aligning with this stance, we build on Deleuze and Guattari's (1987) notion of the rhizome, where we understand community gardens not as sites of individual cultivation, but as transversal ecologies of dynamic, cross-cutting relationships among human and more-than-human beings that exceed the fixed boundaries of institutions, cultures, spaces, and species. In the context of immigrant community gardens, transversal ecologies invite us to see the garden as more than a site of food production or social integration. Reframing the interactions as emergent relationships calls for recognising more-than-human cohabitants as multispecies partners in seeking conditions to thrive within often uncertain environments. The mutual possibilities of uprooting and regrounding undermine hierarchical models of human-nature relations, instead drawing attention to the constitutive entanglement of species (Haraway 2008). These spaces embed and embody unfolding encounters between displacement histories and local ecologies, disrupting binaries of nature/culture, human/non-human, and local/global by foregrounding processes of generative tension, negotiation, and emergence.

However, given the neglect of historical grounding in Deleuze and Guattari's conception of rhizome (Tsing 2015), our framing additionally draws on Indigenous epistemologies that refuse to render Land as a passive territory (Simpson 2014), instead acknowledging them as an active pedagogical agent. In this view, knowledge does not exist as an independent entity, but is instead co-produced through the stories, laws, and memories of the Land. This relational ontology attributes sentience and knowledge to Land and other inhabitants as Elders comprising epistemic authority (Hernandez 2022). Bringing together these perspectives, this study conceptualises the unit of analysis

as a relational assemblage of growers in relation to more-than-human beings, including soil, seeds, plants, insects, and weather. The analytical framing of the unit of analysis draws on the work of Marin (2020) and Hecht and Nelson (2022), who argue that learning and agency are not outcomes of solely human cognition or intention but emerge through forming situated, affective, and reciprocal relationships with the more-than-human world. By shifting the analytical gaze from individuals to relations, they show how learning and identity are co-produced through material, ecological, and social entanglements. In this sense, agency is not a precondition for belonging, but a pathway through which belonging is cultivated.

Rather than assuming how immigrant growers integrate into their relocated society, this study asks: What forms of belonging are made possible through growers' relations with the more-than-human world? What kinds of relational practices are cultivated in the urban community garden? These inquiry trajectories open up methodological possibilities by bringing assemblages and historicizing narratives to rethink the notion of sense of belonging/acts of belonging. By foregrounding the relational, situated, and ecological dimensions of agency, this framework aims to uncover how immigrant growers become-with (Haraway 2008) the land and other beings, generating alternative, rhizomatic possibilities for belonging beyond the dominant narratives of settlement and integration. In attending to these entangled agencies, this framework aligns with scholarship that reconceptualises learning and meaning-making as attunement to interdependence (Vossoughi et al. 2023). It offers a critical lens for challenging the assumed dichotomy of humans and nature, and examining how gardens become generative sites of becoming, learning, and ethical relations.

Context and Research Approach

The site is a 30-acre community urban regenerative gardening initiative held on provincially owned land in Calgary, Canada. Historically, the site where the urban garden is located was a wetland ecosystem when stewarded by the Indigenous communities. However, the area was severely degraded as it became a dumping ground for debris while roads and commercial storage facilities were being constructed in the vicinity. As such, the location of the space seems like a visual anomaly amidst the buzz of vehicles and roads surrounding it. Because of damaging human relationships with the land after colonisation, the soil is compacted, making farming activities challenging (Swallow et al. 2023). Compared to the fertile areas that growers were familiar with in their home countries, these soil conditions proved challenging, presenting growers with a significant need to learn and unlearn agricultural knowledge using regenerative methods. The community garden project formally began in 2018 under the umbrella of a local refugee resettlement agency that signed a 25-year lease with the province to create a space for forcibly displaced communities who have farming backgrounds to reconnect with the land. This urban community farm also serves as a space to (re)build relationships with local Indigenous communities and learn about their practices to regenerate the land while growing food, aligned with the Truth and Reconciliation Commission of Canada, Calls to Action Article 93, for newcomers to know the settler colonial history of a nation now called Canada. The community garden, popularly known as Land of Dreams (LoD), has been a space to host community-led workshops, ceremonies, and artistic events

toward this vision of reconciliation. This study stemmed from a longitudinal community-based research-and-design partnership. This research and design partnership honours pedagogies of learning from and with the Land (Simpson 2014), thus paying attention to agentic capacities arising from human relations with the land and more-than-humans rather than individual trajectories of learning (Takeuchi et al. 2021). The interviews we depict in the paper were conducted at the request to produce a public-facing documentary¹ from the LoD community, and thus the authors saw themselves as part of the community and as listeners enabling the narrative voices to be documented, rather than directing them along lines of specific inquiry. As authors, we both reflected on our experiences of being a racialised immigrant as we interact with the participants and pursue the research project. At the same time, we disciplined ourselves from over-interpreting the participants' narratives using our own lenses without acknowledging our privileges. We centre our grounded learning as the base of our research and have worked longitudinally with the community garden, drawing on current and prior experience volunteering and working in other community gardens across different contexts and geographies. We drew on principles of participatory design research (Bang and Vosoughi 2016) to co-create a visual medium of communication in the form of a documentary for, and with, the growers.² We worked alongside a grower from Nigeria, Adesuwa,³ and a core team member from LoD. Adesuwa contributed to the interview questions, selection of interviewees, and suggested edits for the first cut of the video. The interviews were conducted by the authors, Adesuwa and another colleague who has a background in sustainability studies and regenerative agriculture, and originally hails from Zimbabwe. The program manager and community engagement coordinator at LoD also contributed to the process and representation of the final output.

We followed the narratives of eight racialised immigrant growers over a series of interviews and video data conducted across two years in 2023 and 2024. These eight participants hailed from Afghanistan, Cameroon, Eritrea, Syria, Nigeria, and South Sudan. We focused on their efforts, challenges, and connections with more-than-human communities animated through embodied and affective encounters (Dutta et al. 2025). All interactions took place at the community farm, with both authors often accompanying the growers in their routine activities and spending extensive time on the land.

The data for this analysis consisted of nine field visits totalling roughly 35 h at the LoD, accompanied by extensive field notes, interviews (a total of ~10 h), photo documentation, and additional informal conversations. While the field visits quantified here are in relation to the project of making the documentary, it is important to note that the narratives gathered from the growers took place significantly during the informal conversations that were spread across the two years. In addition, the authors have participated in the space regularly and run a summer camp for children over the past five years (see www.soilcamp.ca). We were thus familiar with the growers and their activities, facilitating an atmosphere of mutual trust. We often volunteered with them, participated in workshops, or gave them company while they were engaged in different tasks to facilitate free-flowing conversations that resist categorisation under traditional 'interviews' (Spradley 2016). While engaged in small talk, we joined the gardening activities, including weeding, watering, harvesting, mulching, and helping out in community potlucks. The camaraderie developed over shared work allowed for qualitatively different responses than what typically constitutes pre-structured elicitation (Sassi and Thomas

2012). For our analyses, we sought to focus on the relational processes and learning emanating from the growers' interactions with Land, thus centring such relationships as the unit of analysis (Marin 2020; Hecht and Nelson 2022). For constructing the interviews, we focused on narratives and actions that conveyed the growers' connection with the more-than-human world, identified through the mention of specific plants, soil, other beings, particularly in relation to their own intentions, capacities or feelings. We sought to characterise their personal meaning-making journeys at the farm rather than a more generic description of the space.

For the purpose of analysis and discussion, we focus on particular manifestations of rhizomatic assemblages, keenly aware that multiple dimensions and different facets would present themselves in another context, time or place. The first theme focuses on the relationships of Joska and Ghislane, two women with Black Nightshade, an edible plant considered a weed in Canada. The second excerpt explores Girmay's journey in asserting his identity as an urban farmer through evolving relationships with various plants. In delving into interviews and video-recorded actions shared by immigrant growers who participate in the community urban farm initiative, we draw attention to the non-deterministic, emergent perspectives on agency and belonging that develop over unpredictable interactions with the Land, inhabitants, and other material artefacts.

Nurturing Community Health by Growing Black Nightshade

Growers narrated their experiences and experiments with cultivating various kinds of plants that reminded them of home. Joska, originally from South Sudan, explained that she tried growing plants such as Black Nightshade, Black-Eyed Peas, Bitter Leaf and a few other greens found in her home country, but had limited success with most, except for Black Nightshade, which managed to acclimatise to the local weather. Apart from Nightshade, growers also described growing Amaranth, Sweet Potato (they consume the leaves too, apart from the tuber), and Malakwang. Varieties of Amaranth, also known as pigweed, are considered invasive weeds by the municipal government, but they are edible and utilised by immigrant growers who possess the relevant culinary knowledge. Despite the predominantly cold and dry weather, Joska and other growers, such as Ghislaine and Patrick, who are both from Cameroon, have found ways to cultivate Nightshade. However, saving seeds for the next season remains a challenge, and they must procure new seeds every growing season. Nightshade plants are not native plants and are not considered edible in the mainstream food distribution. They are treated with fear because many varieties can be toxic (Olet et al. 2005). However, for these growers, it offers them the comfort of familiar tastes and contributes to the diversity of edible greens available locally.

Such narratives resist romanticised interpretations of belonging by complicating the process through a meshwork of desired plants, migration histories, and adaptation to new environments, both ecologically and socially. By growing and harvesting Nightshade, which is considered non-edible or even toxic in dominant Canadian discourse, the growers found themselves asserting a different definition of acceptance and belonging mediated through the survival of a tropical species in a sub-tundra region. Growers also shared their efforts to reclaim agency over the health of their bodies through consuming

specific plants. Commenting on her connection with Black Nightshade in terms of its health benefits, Joska explained:

So once I eat my plants that I plant, which is the black nightshade, it will improve my sugar. That's one thing ... And it's not only me in my community. A lot of people are going through this diabetes thing. So even my plant, you can see now I have there, is not enough for everybody ... So imagine if Land of Dreams can have a good and a better land for that plant with my community really, really need them. Then, I will save so many people's lives in terms of, say, diabetes and all that type of stuff.

However, contrary to her expectations, the space allotted to Joska for growing nightshade turned out to be beyond the formal boundaries of LoD, and it had to be razed to the ground after the adjacent land was sold by a private owner for commercial purposes. As a result, Joska did not have an assigned plot for the year 2025, and said that she would have to wait until the following year to begin growing again. Seen this way, displacement and settlement are repeated events playing out at different scales, rather than a singular, linear movement.

The process of growing Black Nightshade extended beyond the needs of personal consumption, often involving demands for the plant from the larger African community owing to its unavailability in conventional grocery stores. The rhizomatic flow of their connection with the plant thus partially recreated the socio-cultural milieu of home through communal practices of eating. Growers host potlucks at LoD a few times in the year, during which Ghislaine and Joska have prepared dishes from Black Nightshade to share with the community. The act of sharing has led to other interesting developments that hinge on the continued harvesting of Black Nightshade. Other growers are now more familiar with the vegetable, and there is a growing acceptance of the plant as an edible green.

For instance, Ghislaine described how they are able to cook a variety of dishes with Black Nightshade, and it is thus a popular vegetable back home. Her community's concerted efforts to grow the plant stemmed from the unavailability of diverse leafy greens from the local grocery stores, where mostly spinach or lettuce varieties are available.

For us, the Black Nightshade is I mean, it's a healthy food, you know, it's green. It's full of fibre, full of iron, and it's, like, easy to digest. You can cook it in many ways. Different ways. You can, like, steam them. You can fry them. You can mash them with potatoes with plantain. You can also make like stew to eat it with rice.

Growers also described how they are able to harvest Nightshade and other leafy greens 3–4 times during the growing season, thus providing them with regular produce instead of having to wait until the end of the growing season. Despite the short growing season, some of the growers have been trying to save seeds from the plant for the subsequent season. Joska and Ghislaine's knowledge about the medicinal and nutritional properties of Black Nightshade, and their efforts to grow at scale for the community, align with Indigenous cultural practices of considering food to be healing. As Redvers (2019) argues, Indigenous knowledge systems view medicine as any entity, relationship, or practice that supports collective wellbeing, including land and other inhabitants. It also contrasts with reductionist Western views on medicine (Feghali 2024), which emphasise a mechanistic approach to the body. While not to be considered a substitute for the mainstream health system, the expansion of health beyond the absence of disease to holistic well-being is manifested in Joska's relationship with Black Nightshade as culturally

and nutritionally significant. The tacit unsettling of ‘weed’ categories also resonates with Indigenous practices of recognising the direct or indirect value of all plant species in terms of extended kin (Kimmerer 2013). The relational agency manifested by Black Nightshade in adapting to the local climate conditions, and Joska attesting to the plant as an alternative medicine, are entwined through mutual care and ideas of health as depicted in Figure 1.

An illustration depicting rhizomatic assemblages constituting Joska’s relationship with the land through growing Black Nightshade that comes to manifest through historical lines of plant knowledge, soil, notions of health and medicine, family recipes, patterns of migration and so on. The multiple intersections depict possible knots of becoming, and the inherent incompleteness of such assemblages that are always shifting and growing.

Remapping Identity as an Urban Farmer Through Evolving Relationships on the Land

Originally from Eritrea, Girmay moved across several cities and countries before arriving in Calgary in 2018. He comes from an agricultural family and commented that gardening and farming ‘is an addiction’ for him. Despite the economic and social struggles of immigrating to a new country, Girmay explained that he would often fill his apartment with so many plants that he had been evicted from rented homes. He shared his dream of becoming a ‘full-time urban farmer’ and has been trying to maximise his time and gardening activities at LoD. During his initial years at LoD, he cultivated diverse crops, especially tropical greens like Amaranth, and was actively seed saving for the next growing season. He explained that Amaranth is a popular uncultivated green in his home country and grows in abundance. At LoD, however, it is considered a weed, and was earlier uprooted indiscriminately. Nevertheless, he grew Amaranth for personal consumption and often distributed it to other communities that also recognise its culinary

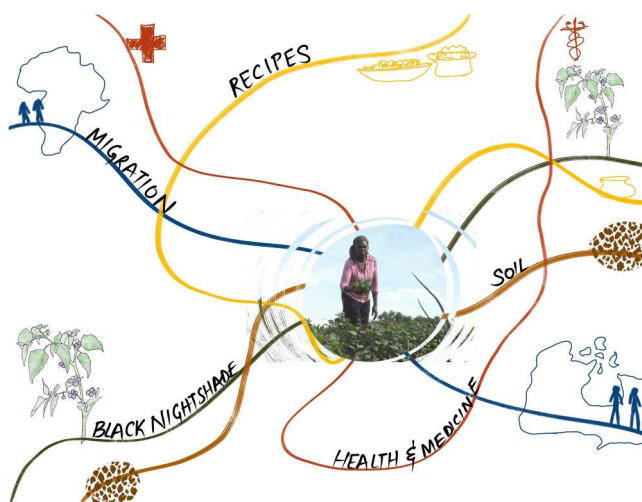


Figure 1. Rhizomatic assemblages constituting Joska’s relationship with the land.

value. In fact, he commented on how he had a hard time saving the plant for seeding because of its high demand,

My friends from Vietnam (fellow growers) also, I let them harvest, and they were even eager to take all, but no, no, no, I need it (plants) for seeds.

He also experimented with growing other crops like Mustard, Kale, Sunflower and Canola, observing that birds are quick to eat the Sunflower seeds, and bees like the Canola flowers. He mentioned powdering dry stalks of the Canola plant and was convinced that he would find some use for it on the farm. He also participated in beekeeping in the initial years, narrating that beekeeping had almost always been a part of his life because his father was a beekeeper. Even when moving across cities, he had tried to maintain beehives, and Calgary was the fourth city where he was doing some beekeeping. He had explored and developed beehive boxes more suitable for the harsh winters in Calgary. He would often work without the conventional protective gear, explaining that the bees were quite docile compared to African varieties and that a couple of stings were 'highly medicinal'. Wanting to support his passion for farming in a financially sustainable way, he began apprenticing with another local farmer who had experience in community-supported agricultural practices to gain practical know-how about selling farm produce in local markets. At the same time, he cultivated different crops on his plot and found Kale to have a steady demand. The commercial demand, in turn, affected his crop choices for the subsequent growing seasons. While he was growing diverse crops for personal consumption in the initial year, he later began allocating more space for growing Kale. However, despite the economic allure of allotting his entire plot for growing kale, his observations and sensibilities as a farmer had led him to appreciate the nuances of soil-plant relationships. Commenting on his evolving perceptions of soil, he explained,

Soil is, an amazing thing. There is also a way of producing without disturbing the soil. The soil is - from this learning and this impression that I already gained, the soil is like something like sacred. Before that, it was something, like an object, like, for example, something that is lifeless ... So now when I pull, a root of, weed, for example, I tend to, to understand the connection between the roots and the soil and the microorganism, so unless it's difficult and much of the time I cut now the stem of the root and the left, the root of the weed. Weed or the root of the produce that is, not needed. It's root, the root is always left in the soil. So, I just learned this.

He contrasted this experience with the burning of sorghum crop stubble in his home country as a child. Despite the pressing need for financial sustainability, Girmay took the risk of quitting his contract jobs to earn a living solely based on farming. He has been able to negotiate an arrangement to supply his Kale to a restaurant chain in the city, but often gifts his produce to other growers at LoD as well. His ways of navigating the pressures of farming as a livelihood, and his desire to cultivate the land in all its complexity, manifest in the connections he has been making with the health of the land and the success of the crops grown. While dedicating almost 70 per cent of his half-acre plot to kale, he has been growing sunchoke tubers, also known as Jerusalem artichokes, across the boundary of his plot, explaining that these are hardy plants that act as windbreakers, protecting the more fragile crops. The tubers are also perennial and self-germinate every spring. He has been utilising the different crop cycles to grow multiple crops in different seasons to maximise

the use of the land while avoiding competition between plants. Pointing to garlic shoots growing on his plot, he explained how he would be planting kale next to them, calling the garlic as ‘doctors’ who help repel insects and animals when the kale seedlings are prone to being eaten. By the time the kale is maturing, the garlic would be ready for harvest. He also routinely inoculates some raised beds with edible mushroom spores to harvest mushrooms intermittently whenever they fruit. Following his interactions with Indigenous Elders, Girmay remarked that there has been an acceptance of other animals being a part of the land, and thus having their share:

because this area is also naturally, inhabited of like rabbits, gophers, and other, like, small insects. So, usually we, we will grow for all of us ... for rabbits, for gophers, for some of the bugs instead of killing them we just we set aside some for them.

He has also been experimenting with growing herbs and spices from other countries, even though they are not of immediate commercial value. Instead, he described wanting to learn about other cuisines through growing herbs usually used in cooking, and asked the first author about fenugreek greens (*Methi*) used in Indian cooking. He mentioned buying relatively expensive Honeyberry saplings from a fellow farmer to grow around his farm as perennials. He also often sources non-standard plants such as Chinese chives through exploring the city network, reflecting his drive to continue expanding on his farming knowledge and skills in the form of an embodied dialogue with the land and the life it supports. His pursuit of remapping his identity as an urban farmer is entwined with the growing practices that are not merely utilitarian or economic. The interactions suggest a fluid dynamic shaped by memory, context, and evolving relationships with people and more-than-humans as depicted in Figure 2. For instance, Girmay’s cultivation of Amaranth, or different ways of beekeeping, resists settled agricultural practices in the area with diasporic significance. At the same time, his evolving relationship with soil, his knowledge of plant-insect interactions, and his



Figure 2. Rhizomatic assemblages constituting Girmay’s relationship with the land.

use of perennial border plants like sunchoke reflect a meshwork of newly-gained knowledge intermingling with his existing skills.

Illustration depicting rhizomatic assemblages constituting Girmay's relationship with the land through growing Amaranth, Wild Mustard and other plants based on his experiences as a farmer. His relationship with kale develops over the course of wanting to establish himself as an urban farmer and to financially sustain his interests. His practices are also informed by his connections with Indigenous Elders in the community. The multiple intersections depict possible knots of becoming, and the inherent incompleteness of such assemblages that are always shifting and growing, depicting Girmay's evolving decisions of farming practices.

Discussion: Belonging as a Perennial, Incomplete Rhizomatic Assemblage of 'Becoming-With'

Sense of belonging has been conventionally theorised in terms of cultural identity, citizenship, or social inclusion. However, in contexts shaped by migration, environmental precarity, and settler colonial landscapes, these frameworks often neglect more dynamic, embodied, and ecological forms of attachment. The increasing uncertainty fueled by socio-ecological crises further underscores a need to attend to the moment-to-moment encounters and micro-gestures of placemaking. For instance, the city experienced drought-like conditions in the summer of 2024, and excess rain in the summer of 2025, both conditions requiring growers to adapt extensively and manage crop loss, soil conditions, etc. Reconsidering belonging through the lens of human–more-than-human relations offers a more relational and processual perspective by foregrounding how people co-constitute place with plants, soil, weather, animals, memories and newer experiences. Conceptually, this article furthers the argument for integrating more-than-human, multispecies perspectives with a relational, affective lens offered through rhizomatic assemblages. The integration helps illuminate the point that human-more-than-human entanglements are not value-neutral, with certain directions of rhizomatic learning oriented toward care and agency, while other directions can be destructive for both human and more-than-human bodies. In a bid to move away from anthropocentric narratives in migration studies, directing attention to vegetal relations can help understand, as Drotbohm (2025) comments, 'migration not only as a movement through space but also as a multispecies process of survival, adaptation, and co-becoming' (p.124).

Our analysis reflects the constant engagement of immigrant growers with the more-than-human inhabitants on the land, as they collectively develop agentic capacities in non-linear ways. Contrary to an assimilation model commonly used to describe the integration of immigrants into their newly settled homes, the efforts of immigrant growers indicate a more complex process of negotiating their multiple knowings in relation to the land. The stories shared by the growers serve to ground the care and creativity in plant-human entanglements that operate alongside vulnerabilities and barriers in enabling conditions for thriving. Rhizomatic agency arises through the possibilities and constraints offered by human interactions with the soil, plants and other beings, visible in the unexpected success of a tropical plant, Nightshade, growing in sub-tundra conditions. As Black Nightshade grew, previously displaced people's agency

and hope to serve the broader community's demands also grew. Originally conceived as a regenerative farm helping immigrants to settle in a new country, LoD is a constantly evolving space that bears its geographical and social history in its soil profile while also changing in response to immigrant growers' efforts of growing edible plants relevant to their cultures. The sense of belonging is co-created rather than bestowed. In our exploration, we extend the notion of agency in learning, adapting and belonging to more-than-human entanglements to characterise the spatial and cultural reconfigurations taking place through attending to the soil, plants, humans and other beings.

In Deleuzian terms, Girmay's journey is not about becoming-*the*-farmer in a fixed, capitalised, state-sanctioned sense (Deleuze and Guattari 1987). His experimental practices reflect an unfolding assemblage of body, land and plants as he recognises garlics as 'doctors', sunchokes as 'wind-breakers', and bees as predictors of inclement weather. These are rhizomatic connections that grow laterally, in multiplicity, instead of privileging a single centre of knowledge. Methodologically, the study grounds the conceptual mobility of rhizomatic assemblages and the unit of person-with-more-than-humans, with relations to land, history, and kinship. Our methodological contribution challenges the flattening power differentials and colonial legacies inscribed in imposed relationships among humans, lands, and more-than-humans. In Girmay's case, these connections are grounded through his encounter with Indigenous Elders who impress upon him the ethics of care through kinship and reciprocity. His evolving respect for soil and his refusal to uproot weeds completely in recognition of their microbial symbiosis efforts of ethical emplacement. This ongoing becoming-with also includes negotiation with the capitalist logics of commercial farming. Girmay grows kale for market demand but does not reduce his plot to a monoculture. His actions are not dictated solely by economic rationale but emerge through affective attunement to the land's relational cues. Instead of succumbing to the pressures of maximising yield, he plants honeyberry, diverse herbs, and perennial tubers along the margins. These actions, in turn, create zones of potentiality where alternate ways of settling and farming, beyond conventional imagination, become possible. Girmay's farming practices embody not just Deleuzian notions of ruptures and movement, but also a meshwork of rootedness and multispecies relation-building through sustained encounters with Indigenous ontologies. Ingold (2015) describes inhabiting as a dynamic process with the inhabitant as one 'who participates from within in the very process of the world's continual coming into being and who, in laying a trail of life, contributes to its weave and texture' (p. 81). Rather than static categories interacting with each other, rhizomatic agencies in the form of meshwork continually redefine the growers' scope and possibility of engagement through the health of the soil, plants and other more-than-human inhabitants.

Going beyond human-centric verbal descriptions of social inclusion, the growers' responses illustrate how belonging is co-constructed through embodied engagements, multispecies interactions, and tacit knowledge. This calls for intercultural approaches that can register material-semiotic entanglements, such as ethnographic fieldwork embedded in daily activities, sensory mapping, or soil listening (Puig de la Bellacasa 2017). The garden itself becomes a living archive, where soil histories, plant health, composting practices, and intercropping patterns detail different dimensions of agency and belonging experienced by the growers. As Alkan and Calkins (2025) submit, attending to intimate human-land-plant relations allows us to focus on the neglected dimensions

of how some immigrants seek to inhabit a place, while remembering past places and co-creating conditions for new dwellings. The relations help understand more-than-human agencies involved in place-making by foregrounding marginalised forms of knowledge developed in dialogue with plants.

Moreover, such a reconceptualisation prompts us to question whose knowledge and expertise are made visible in urban agroecological spaces. Practices like Joska and Girmay's – reclaiming 'weeds', altering crop cycles based on ecological cues, or refusing to over-extract from the soil are often marginal to formal agricultural science, yet are grounded in embodied experimentation and inter-generational intuitions. By centring more-than-human relations as a site of belonging, researchers and practitioners can respect and acknowledge these modes of knowledge, thereby challenging the anthropocentrism inherent in both policy and research frameworks.

Notes

1. Link to the documentary will be provided once it is uploaded.
2. The term 'growers' was suggested by a core team member of LoD, who explained that the immigrants felt that 'gardening' did not encompass the range of activities they were involved in, or their aspirations for fuller engagement with the space. They connected 'gardening' with a more leisurely hobby, and thus prefer the term 'growers'.
3. The participants in the study requested to being referred to by their first names in the documentary, and we respected their wishes by mentioning their first name in the paper as well.

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Ethical Approval

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