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## EDITED BY

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Darcy Riddell,  
University of Waterloo, Canada

## \*CORRESPONDENCE

Faisal Moola  
✉ fmoola@uoguelph.ca

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# The potential for Indigenous-led conservation in urbanized landscapes in Canada

Faisal Moola<sup>1,2\*</sup>, Helina Jolly<sup>1,2</sup>, Joli Borah<sup>1,2</sup> and Robin Roth<sup>1,2</sup>

<sup>1</sup>Department of Geography, Environment and Geomatics, University of Guelph, Guelph, ON, Canada,

<sup>2</sup>Conservation through Reconciliation Partnership, Guelph, ON, Canada

Indigenous Protected and Conserved Areas (IPCAs) are an important pathway and governance system for area-based conservation led by Indigenous Peoples. While IPCAs have been established across rural and northern regions of Canada, they have received little attention in urbanized landscapes, even though all of Canada's urban areas coincide with First Nations, Inuit, and Métis territory (and thereby underlying Indigenous jurisdiction) and the majority of Indigenous Peoples in the country live in urban centers. Canada's federal government is in the process of establishing six new urban national parks and has committed to working with local Indigenous governments and organizations in parks planning. This study examined the potential for strengthening Indigenous participation in urban parks planning, governance, and management, including the establishment of new urban Indigenous Protected and Conserved Areas (UIPCAs). The results of spatial analyses of urban Indigenous territory, a review of relevant domestic and international policy and interviews with local Indigenous conservation leaders illuminate the potential for new forms of urban conservation governance that are grounded in Indigenous rights and responsibilities and reflective of Indigenous knowledge systems and biocultural priorities. However, it remains to be seen how urban Indigenous-led conservation, such as UIPCAs, can fit and operate within proposed government urban conservation initiatives, such as Canada's Urban National Parks Program, which do not currently foreground Indigenous-led conservation in the governance of urban green space.

## KEYWORDS

Indigenous, urban conservation, protected areas, decolonization, biodiversity

## 1 Introduction

Throughout most of human history, people have lived in small and low-density communities and in close association with nature from which we have derived our primary sources of sustenance and livelihood. Patterns of human residency and land use have shifted dramatically in the last century and it is estimated that more than half of the global population now resides in urban areas ([United Nations Department of Economic and Social Affairs, 2016](#)). While urbanization is a global phenomenon driven by the explosive growth of high-density mega-cities (defined as cities with populations over 10 million people, e.g., Tokyo, 37 million, Delhi 28 million; Mexico City, 21 million), the urbanization growth rate in far less populous nations, such as Canada, exceeds that of most other countries. The total area of Canadian towns and cities almost doubled between 1971 and 2001 ([Albrecht, 2013](#)) and Canada ranks within the top 50 urbanized nations, with over 82% of Canadians now residing

in urban areas. That number is expected to increase to 90% by 2050 (United Nations Department of Economic and Social Affairs, 2016).

In response to the pace and scale of urbanization in Canada and ongoing threats to biodiversity from urban land use and development (Hirsh-Pearson et al., 2022), the Canadian government has made urban nature protection a priority in its commitment to conserve at least 30% of the nation's lands and waters by 2030. The Canadian government has emphasized the importance of partnerships with Indigenous Peoples in achieving the 30 × 30 conservation goal, including in its plan to establish six new national urban parks by 2025 as part of its National Urban Parks Program. The government's Parks Canada Agency (PCA) is currently engaging with municipalities, provinces, Indigenous partners, and conservation organizations to identify potential urban national park sites at various locations across the country. The network of national urban parks will include areas managed under a range of flexible governance models, including federally administered places, third party administered places, and partnership models. Candidate national urban parks under the program have so far been identified in Saskatoon, Winnipeg, Halifax, Windsor, the greater Edmonton area, Colwood and Montreal.

In 2023, the Canadian government released a national urban parks discussion paper in support of its National Urban Parks Program and forthcoming national urban parks policy (Parks Canada Agency, Government of Canada, 2024). In it, the Canadian government has emphasized three interconnected objectives to guide policy development: (1) conserving nature; (2) connecting people with nature; and (3) advancing reconciliation with Indigenous Peoples. The federal government's commitment to partnering with Indigenous Peoples in its National Urban Parks Program is consistent with recent developments to decolonize conservation policy and practice globally (Dominguez and Luoma, 2020; Maxwell et al., 2020; Tran et al., 2020), including support for area-based conservation led by Indigenous Peoples; known as Indigenous Protected and Conserved Areas (IPCAs) in the Canadian context (Zurba et al., 2019; Dietz et al., 2021; Mansuy et al., 2023; Townsend and Roth, 2023).<sup>1</sup> Recent research has found that areas of greatest biodiversity overlap with Indigenous territories globally (Garnett et al., 2018) and there is growing evidence that IPCAs and other types of Indigenous-managed areas are as good or better at resisting environmental degradation from human land use, as well as sustaining biodiversity, compared to state-regulated parks (Nepstad et al., 2006; Corrigan et al., 2018; Schuster et al., 2019). The significance of Indigenous Peoples to conservation is recognized and upheld in numerous global policy agreements, tools and guidance, such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, McElwee et al., 2021) as well as the Kunming-Montreal Global Biodiversity Framework (KMGBF) that was adopted during the fifteenth meeting of the Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD, 2022). The KMGBF "recognizes the important linkages between biological and cultural diversity" for Indigenous and Local Communities (IPLC) and protects

the customary use of wild species that are important to IPLC, including those with biocultural significance. Furthermore, seven of the KMGBF's 23 targets for policy action over the decade to 2030 explicitly reference IPLC, their rights, traditional ecological knowledge and customary practices, including Target 3 that obligates countries to protect terrestrial and aquatic ecosystems in protected areas and other effective area-based conservation measures (CBD, 2022).

Despite the strengthened mandate for Indigenous-led conservation in policy and the growing empirical evidence of its effectiveness (e.g., Tran et al., 2020; Lamb et al., 2022), its application to the stewardship of urban greenspace has received little scholarly attention to date. A considerable research gap exists on the role of IPLC in urban conservation, including studies on governance and other policy directions (e.g., stewardship of urban biocultural diversity Stålhammar and Brink, 2021; Albuquerque et al., 2023) or the outcomes of green space protection for urban Indigenous populations specifically (e.g., benefits for health and wellbeing, Hatala et al., 2020). The few studies that have been done have drawn attention to the degradation of Indigenous socioecological systems with urbanization (Darby et al., 2011; Simpson and Bagelman, 2018) and that these negative impacts are often further exacerbated by state-led conservation of remaining urban green space which disconnects Indigenous Peoples from sources of traditional foods and cultural sites (Finegan, 2021; Hernandez and Vogt, 2022). For example, Simpson and Bagelman (2018) report that over 95 percent of Indigenous agroecological systems in Lekwungen territory (Victoria, British Columbia) have been lost with urbanization. These ancestral food systems were traditionally centered on the management of Kwetlal (*Camassia* spp.), an important food staple. Today, remnant populations of the species are mostly found in local parks, but where management prescriptions prioritize recreational, ecological and horticultural objectives rather than the maintenance of the plant as an important Indigenous cultural keystone species and ancestral food crop (Simpson and Bagelman, 2018). Kwetlal in Beacon Hill Park in Victoria, as well as other Indigenous food plants, such as Cattail (*Typha* spp.) in Toronto's High Park, have been targeted and indirectly impacted by chemical pesticides, replaced with non-native ornamental plants and impacted by altered fire and hydrological regimes imposed by city parks departments (Simpson and Bagelman, 2018). Other studies have argued that urban parks are often not culturally representative or safe spaces for Indigenous Peoples and other marginalized communities, particularly inner-city youth, furthering the process of erasure and dispossession with settler colonialism (Hatala et al., 2020; Hernandez and Vogt, 2022; Mullenbach et al., 2022). Canadian parks, including in urban centers, most often fail to acknowledge Indigenous Peoples' ongoing custodianship of the land, necessitating structural changes to ensure the inclusivity of Indigenous rights, knowledge, customary use, governance and environmental stewardship systems (Youdelis et al., 2021; Mansuy et al., 2023; Townsend and Roth, 2023).

While IPCAs are being established across rural and northern regions of Canada as an alternative to state-led protected areas that "limit Indigenous governance over and use within their borders" (Townsend and Roth, 2023, p. 5), they remain a nascent form of governance in urbanized landscapes. No urban IPCAs have yet to be established in Canada, though other activities to Indigenous urban green space are underway, sometimes in partnership with Crown governments (i.e., federal, provincial, territorial and municipal

<sup>1</sup> The International Union for the Conservation of Nature (IUCN) uses Indigenous and Community Conserved Areas, or ICCAs, to denote territories and areas governed, managed and conserved by Indigenous Peoples and Local Communities.

governments). They include the recognition of Indigenous place names on signage, trails and other infrastructure that celebrate the Indigenous presence in urban greenspace, educational programming focused on Indigenous plant knowledge and reclaiming ancestral food systems, as well as the restoration of customary practices that sustain biocultural diversity (e.g., Indigenous involvement in prescribed burning programs; [Finegan, 2021](#); [Roos et al., 2021](#); [Hernandez and Vogt, 2022](#)).

Given the significance of urban Indigeneity and importance of traditional environmental stewardship systems, this study aims to address the research gap on Indigenous Peoples and urban greening through an examination of the potential role of Indigenous-led conservation in Canadian cities. It is our goal to proactively inform policy development that will guide the establishment of new urban national parks in Canada and to challenge conventional narratives of urban conservation. Specifically, the objectives of this study are to understand Indigenous-led conservation in urbanized landscapes through (1) a spatial analysis of the intersection of Indigenous territories and protected green space in 22 of Canada's largest cities; (2) a description of Indigenous stewardship in three case study areas that are candidates for urban national urban park designation in Canada; and (3) a review of international and domestic policy agreements, tools and guidance for advancing Indigenous-led conservation in urban areas more broadly.

Before addressing these objectives, we introduce the reader to the significance of urbanized areas to Indigenous Peoples in Canada.

## 1.1 The significance of urbanized areas to Indigenous peoples in Canada

While Indigeneity in Canada has typically been equated with rural and northern regions of the country and not urbanized landscapes, urban areas are an important and rich component of the pan-Indigenous fabric of the country ([Senese and Wilson, 2013](#)). Canada's urban centers coincide with the traditional ancestral territories of First Nations, Inuit, and Métis, and thereby intersect with underlying Indigenous jurisdiction ([Place, 2012](#)). As noted by the National Association of Friendship Centers: "*Indigenous people belong in urban centers. All lands in Canada, including urban areas, are the traditional ancestral territories of First Nations, Inuit, or Métis, despite the efforts to displace our Peoples from them*" ([National Association of Friendship Centers, 2022](#), p. 12).

Indigenous Peoples have been stewarding their lands and waters for millennia and Aboriginal rights jurisprudence in Canada provides clear direction that First Nations, Inuit and Métis need to be recognized and treated as decision-makers, with political authority and rights, over their own traditional territories, including in urban areas ([Reo et al., 2017](#); [Artelle et al., 2019](#); [Dietz et al., 2021](#)). Throughout much of Canada, Indigenous Peoples' land and other rights are enshrined in historical and modern treaties. Indigenous Peoples' existing Aboriginal and Treaty rights are also acknowledged and affirmed in Section 35 of the Canadian Constitution Act (1982). In some parts of the country, First Nations have gained new powers under recent court decisions as well (e.g., *Tsilhqot'in Nation v British Columbia* 2014 SCC 44; [Reo et al., 2017](#); [Townsend and Roth, 2023](#)). In addition, the collective and

individual rights of Indigenous Peoples, including Indigenous governance over traditional lands and waters and requirements for free, prior and informed consent for activities happening in them, including conservation, are protected internationally through the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which Canada is a signatory to but has yet to fully implement ([Smith, 2015](#); [Artelle et al., 2019](#)).

Moreover, most Indigenous Peoples in Canada now reside in urban areas. Based on the 2016 census [Statistics Canada \(2017\)](#) has estimated that over 860,000 Indigenous people reside in large towns or cities with a population of 30,000 or more. This equates to approximately 51.8% of the total Indigenous population of the country. However, as noted by the [National Association of Friendship Centers \(2022\)](#), the urban Indigenous context is complex, and urban Indigenous populations are not easily defined solely on demographic or geographic criteria used in government census programs. Furthermore, individuals' relationships with urban geographies are nuanced and reflect colonialism's historical and ongoing consequences, such as deterritorialization and systemic racism ([Peters, 2004](#); [Finegan, 2021](#)). For example, Indigenous urban populations are more mobile than non-Indigenous residents. However, migration patterns are not straightforward and unidirectional (e.g., movement occurs between rural and urban areas and within urban areas; [Graham and Peters, 2002](#)). As noted by the [National Association of Friendship Centers \(2022\)](#), urban Indigeneity has been influenced by voluntary and involuntary migration to towns and cities going back generations: "Multiple push and pull" factors lead Indigenous people to be located in urban and rural areas. Pull factors include things like employment, education, family considerations and opportunities. Push factors include lack of health care and primary/secondary education options, housing availability, forced removal due to the child welfare or justice systems, violence, homophobia/transphobia, or lack of other specialized and required services." ([National Association of Friendship Centers, 2022](#), p. 14). Finally, the general lack of data regarding urban Indigenous populations and distrust of researchers and governments owing to exploitative research and census gathering has likely contributed to a significant under-estimate of the size and diversity of urban Indigenous communities across the country ([National Association of Friendship Centers, 2022](#)). For example, a community-based study by [Rotondi et al. \(2017\)](#), using participatory research methods, estimated that the Indigenous population in Canada's largest city, Toronto, maybe two to four times larger than official census estimates.

## 2 Materials and methods

We employed a variety of approaches to investigate the potential for Indigenous-led conservation in urban areas in Canada. At the national scale we conducted: (1) spatial analyses of urban landscapes to describe the current level of protected greenspace and urban parkland in relation to underlying Indigenous territories in Canada; (2) semi-structured interviews with Indigenous conservation leaders in three case-study areas where new urban national parks are being considered; and (3) a review of international and domestic policy initiatives that are relevant to Indigenous-led conservation in urban areas.

## 2.1 Spatial analyses

There is no globally accepted definition of urban area. While the United Nations reports on global urbanization patterns using country-wide data, many countries use different definitions of urban areas for the collection of this data (United Nations Department of Economic and Social Affairs, 2016). Consequently, the thresholds of urban versus rural often vary dramatically across countries based on metrics such as minimum population thresholds, population density, the amount of infrastructure, employment statistics, or the population of predefined cities (United Nations Department of Economic and Social Affairs, 2016). In Canada, Statistics Canada defines urban areas as 'areas with a population density of 5,000 or more people per square kilometer, or areas with a population density of 1,000 to 5,000 people per square kilometer where fewer than 60% of the population commutes by car (Cullingworth, 2017). This is the most relevant definition of urban landscapes to investigate the potential of urban IPCAs in Canada. We followed this definition and used Ellis et al. (2020) global spatial dataset of urban anthrome layers to identify and map urban areas in Canada with underlying Indigenous territory. These urban anthromes were primarily delineated based on human population density and land use and cover an area of approximately 5,692 km<sup>2</sup>.

We calculated the absolute and relative urban protected area coverage for 22 of Canada's "biggest cities," as defined by the Federation of Canadian Municipalities (2023). We used a variety of spatial data sources including municipal data portals (e.g., City of Toronto Open Data), Canadian federal data portal, private data sources and the IUCN global protected areas dataset. The multiple data sets were merged to identify and map urban parks and protected areas in the 22 Canadian cities (Table 1). Indigenous territories were identified and mapped using data sources available on the Native Land portal.

## 2.2 Case study selection and analyses

We selected three case studies where the federal government has begun consultations with local First Nations and Métis for the possible establishment of new urban national parks in Canada: Ojibway Prairie Complex (Windsor, ON), Blue Mountain-Birch Cove Lakes (Halifax, NS), and Meewasin Valley (Saskatoon, SK). The case studies were selected from a pool of candidate areas that were identified based on criteria such as location, area (ha), diversity of partners, Indigenous territory, biodiversity and cultural value (see Supplementary Table S1) and are illustrative of two possible planning pathways for strengthening Indigenous involvement in urban conservation: (1) Pathway A. The establishment of new urban IPCAs in partnership with Indigenous Peoples on lands that are currently not protected by Crown governments (i.e., federal, provincial, territorial and municipal governments); and (2) Pathway B. Shifting governance of existing urban protected areas (e.g., federal/provincial/territorial/municipal parks) to align with the characteristics of an IPCA as described by the Indigenous Circle of Experts (2018).

Two of the chosen case study areas fall within Pathway A (Ojibway Park Prairie Complex, and Blue Mountain-Birch Cove Lakes) and one case study within Pathway B (Meewasin Valley).

Collectively, the chosen case studies are representative of the diversity in geography (e.g., terrestrial ecoregions characterized by

distinctive regional ecological including climate, physiography, vegetation, soil, water, flora and fauna) as well as Indigenous territories across Canada. They also reflect diverse land use histories and contemporary socioeconomic contexts. Each of these sites has significant biodiversity and cultural value and a diversity of partners that are working in support of urban conservation. All three case studies also meet Statistics Canada's definition of urban area (Cullingworth, 2017).

After selecting the three case studies, we contacted the organizations and people working on urban park-related topics in each location via email or telephone to request their participation in an interview. We identified one Indigenous representative from each site to answer questions on urban IPCA [Appendix A, includes questionnaire] and conducted semi-structured interviews ( $n=3$ ). While more interviews were sought, it quickly became apparent that potential participants were largely unaware of the government's National Urban Parks Program and thus interviews were difficult to obtain. All participants were chosen through purposive sampling based on recommendations and suggestions from Indigenous organizations in each site, and they were paid an honorarium to recognize and value their expertise. Each interview lasted approximately 1–2 h. Interviews were conducted in English and recorded in agreement with the participants. The study design was approved by the University of Guelph, Research Ethics Board (REB Certificate 22–08-10).

In addition to the interviews, we also identified, reviewed, and cataloged relevant observations and insights from sources which document the Indigenous history, management, and governance of the three case study areas.

Based on the study of literature on each park we studied four key themes namely history, biocultural diversity, Indigenous engagement, and governance of each park that were relevant to the discussion of biodiversity conservation. Audio recordings of interviews were transcribed by H.J. The transcribed data were stored, managed, and analyses integrated into the results section below. It involved identifying the park's history, governance, biocultural importance, and the activities and engagements that Indigenous People conduct or aspire to conduct in these urban spaces. References to Indigenous People in our results refer to only those participants involved in this study and are not representative of urban Indigenous populations more widely.

## 2.3 Policy analyses

We reviewed the major international and national policy-relevant agreements, initiatives, and guidance in urban conservation. We looked at whether these policy-relevant processes and initiatives made explicit reference to Indigenous Peoples, their rights and responsibilities, and their role in area-based conservation governance and management, such as the establishment of IPCAs.

## 3 Results

### 3.1 Spatial representation of urban parks

Our analysis of urban anthrome layers in Canada found that major urban areas (cities and towns) cover approximately 0.06% of the

TABLE 1 Overlap of the Federation of Canadian Municipalities' "Big Cities" with underlying Indigenous traditional territories and contemporary urban parks and protected areas.

City	Urban area (km <sup>2</sup> )	Urban park area (km <sup>2</sup> )	Percent parkland (%)	Largest park (km <sup>2</sup> )	Indigenous traditional territory
Ottawa	636.4	153.4	24.1	47.2	Algonquin; Anishinabek; Haudenosaunee-Confederacy; Mohawk
Toronto	663.5	124.0	18.7	3.7	Anishinabek; Haudenosaunee-Confederacy; Huron-Wendat; Mississauga; Mississaugas-of-the-Credit-First-Nation; Petun
Calgary	843.6	122.9	14.6	11.2	Blackfoot; Ktunaxa; Métis; Stoney; Tsuu-T-Ina
Laval	254.5	79.3	31.1	35.4	Anishinabek; Haudenosaunee-Confederacy; Mohawk
Montreal	482.3	70.3	14.6	8.2	Haudenosaunee-Confederacy; Mohawk
Edmonton	676.7	64.4	9.5	2.3	Blackfoot; Cree; Métis; Plains-Cree; Tsuu-T-Ina; Woodland-Cree
Brampton	281.6	39.1	13.9	4.7	Anishinabek; Attiwonderonk-Neutral; Haudenosaunee-Confederacy; Huron-Wendat; Mississauga; Mississaugas-of-the-Credit-First-Nation; Petun
Surrey	327.2	35.5	10.9	3.6	Hul-Qumi-Num-Treaty-Group; Katzie; Kwantlen; Kwikwetlem; Puget-Sound-Salish; Qayqayt; Semiahmoo; Sto-Lo-Treaty-Association; Stzuminus; Tsawwassen; Tulalip; W-Sne; Xmky-M
Winnipeg	475.8	35.3	7.4	2.1	Anishinabek; Métis; Oceti-Sakowin-Sioux
Mississauga	304.8	34.0	11.2	1.8	Anishinabek; Attiwonderonk-Neutral; Haudenosaunee-Confederacy; Huron-Wendat; Mississauga; Mississaugas-of-the-Credit-First-Nation; Petun
London	445.8	30.6	6.9	1.7	Anishinabek; Attiwonderonk-Neutral; Haudenosaunee-Confederacy; Mississauga
Halifax	95.3	30.3	31.8	7.4	Mi'maq; Wabanaki-Confederacy
Hamilton	273.9	29.0	10.6	4.8	Anishinabek; Attiwonderonk-Neutral; Haudenosaunee-Confederacy; Mississauga; Mississaugas-of-the-Credit-First-Nation
Regina	182.1	25.9	14.2	11.2	Blackfoot; Métis; Oceti-Sakowin-Sioux
Kitchener	145.2	20.4	14.0	0.9	Anishinabek; Attiwonderonk-Neutral; Haudenosaunee-Confederacy; Mississauga; Mississaugas-of-the-Credit-First-Nation
Gatineau	163.5	19.1	11.7	8.9	Algonquin; Anishinabek; Mohawk
Quebec City	482.5	15.4	3.2	1.2	Abenaki-Abnauis; Huron-Wendat; Wabanaki-Confederacy
Vancouver	119.2	15.2	12.7	4.2	Kwantlen; Puget-Sound-Salish; Qayqayt; Skwxw7mesh-Xwumixw; Sto-Lo-Treaty-Association; Stzuminus; Tsawwassen; Xmky-M
Saskatoon	233.9	14.5	6.2	1.4	Blackfoot; Cree; Métis; Oceti-Sakowin-Sioux
St. John	84.0	14.1	16.8	7.5	Maliseet; Mi'kmaq; Wabanaki-Confederacy
Windsor	154.4	11.2	7.3	1.2	Anishinabek; Attiwonderonk-Neutral; Meskwahki-Asa-Hina-Fox; Miami; Mississauga; Peoria; Potawatomi
Longueuil	119.5	9.2	7.7	2.8	Haudenosaunee-Confederacy; Mohawk

total land area of the country, with the most expansive urban centers concentrated in southern Ontario, the BC Lower Mainland, and in southern Quebec (Figure 1).

Indigeneity in Canada has typically been equated with rural and northern regions of the country and not urbanized landscapes. As noted by Senese and Wilson (2013), p. 221 “Aboriginal Peoples in Canada have been conceived of in Western thought as the embodiment of nature and wildness” and urbanization as being incompatible or unrepresentative of Indigenous cultures or identities. However, as our spatial analysis shows, all of Canada’s largest cities are located within Indigenous territories (Table 1). Indeed, Canadian towns and cities today sprawl across places where Indigenous Peoples historically gathered and/or settled or were important traditional harvesting areas such as akaronto (Toronto), win nipee (Winnipeg), and manimisāskwatān (Saskatoon) (Place, 2012). Colonial policies of deterritorialization, such as the expulsion of Indigenous Peoples to distant reserves located far from urban areas and regulations and pass systems that effectively barred Indigenous Peoples from towns and cities, have contributed to the erasure of urban Indigeneity in much of the contemporary urban landscape, outside of western Canada (Finegan, 2021). As noted by Peters (2004): “Urbanization patterns are linked to actions that removed Aboriginal people from emerging urban areas, and indeed, unlike other migrants, many Aboriginal people residing in urban areas are in fact residing in their traditional territories.”

Our spatial analyses found that current urban parks and protected areas cover a total area of 993 km<sup>2</sup> in Canada. Canadian cities have an average protected area coverage of 14%, with Halifax having the greatest relative protected area coverage (32%) and Quebec City the lowest (3.2%). In terms of the absolute protected area, Ottawa has the

most urban parks and protected areas (covering 153 km<sup>2</sup>), whereas Longueuil has the least (covering 9 km<sup>2</sup>).

The outsized contribution of Indigenous territories to urban protected area coverage in Canadian cities can be seen when comparing park coverage with underlying Indigenous jurisdiction. The overlap of unceded Indigenous lands and urban green space protection in the BC Lower Mainland is illustrative of this as shown in Figures 2–4.

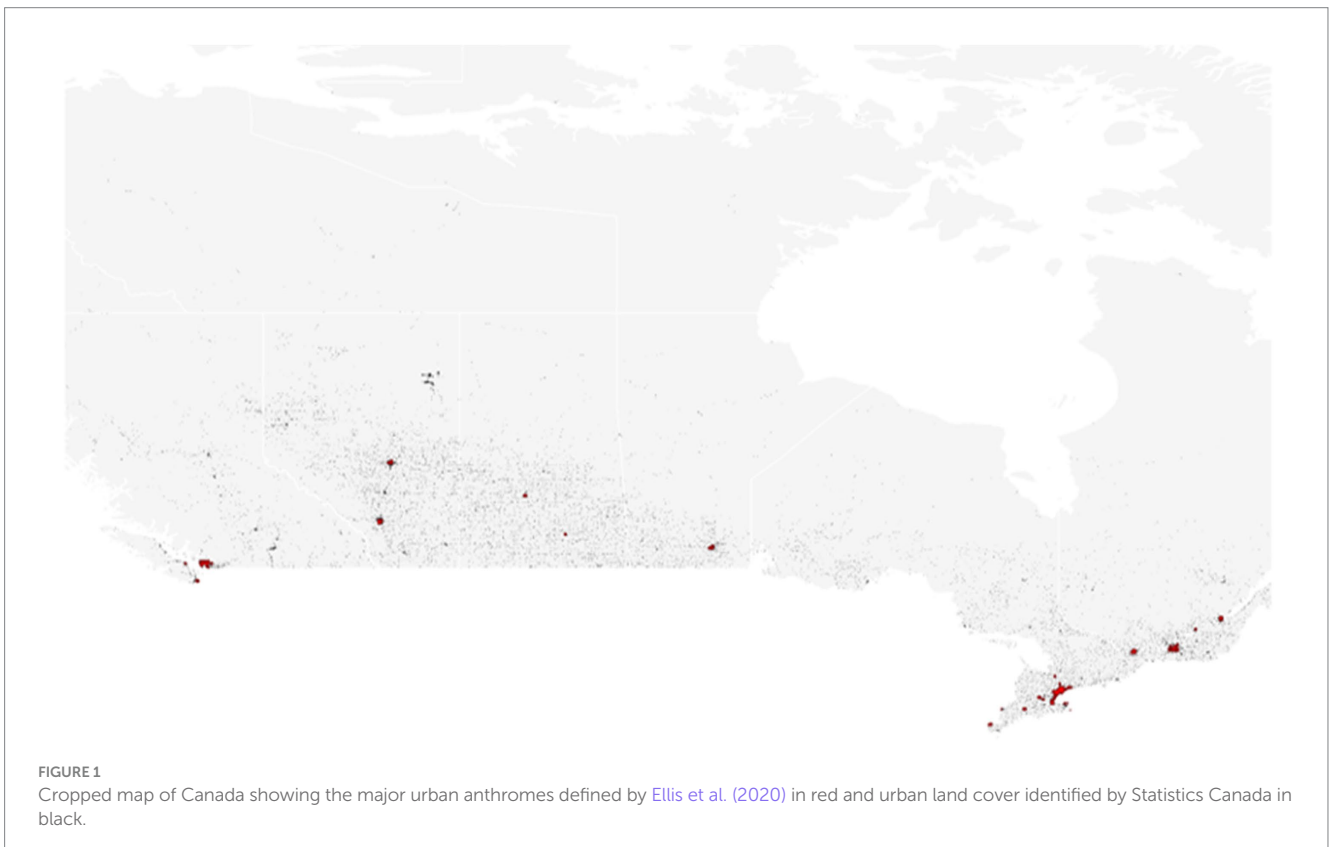
## 3.2 Case studies

The three case studies, Ojibway Prairie Complex, Blue Mountain-Birch Cove Lakes and Meewasin Valley are presented below. Each case study briefly presents the history, biodiversity and biocultural diversity, current governance mechanism, and Indigenous activities/engagements. These case studies highlight the potential opportunities and challenges of Indigenous leadership in conservation in urbanized Canada.

## 4 Case study: Ojibway Prairie Complex, Windsor

### 4.1 Area of interest

- Urban Area: City of Windsor and Town of LaSalle
- Map: <https://pcweb2.azureedge.net/-/media/WET4/pun-nup/windsor/Windsor-map-E.jpg>



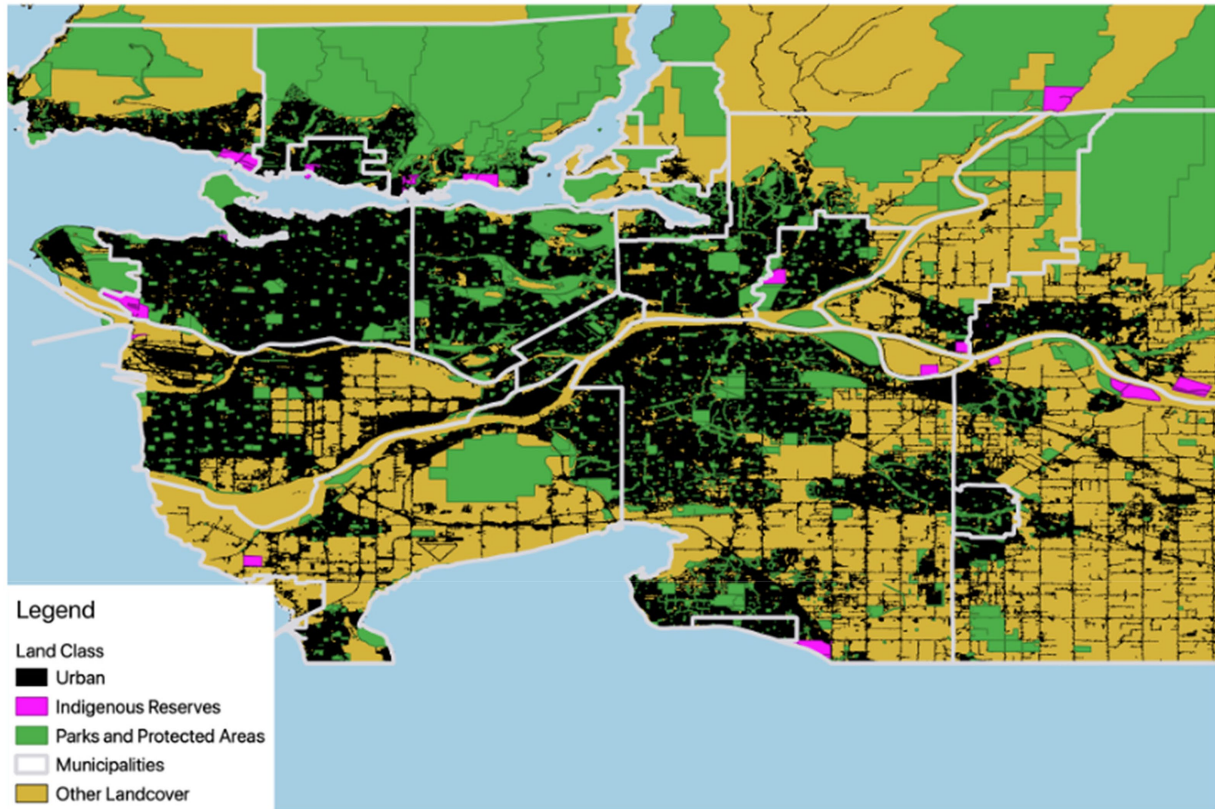


FIGURE 2 Urban parks and protected areas coverage in the Lower Mainland region of British Columbia, Canada.

**Legend**

- Indigenous Reserves
- Parks and Protected Areas
- Territory Centroid
- Indigenous Territories in LFV
- Á,LENEŃÉŁ ŁTE (WSÁNEĆ)
- Coast Salish
- Hul'qumi'num Treaty Group
- Kwantlen
- Kwikwetlem
- Nuxwsa'7aq (Nooksack)
- Qayqayt
- S'ólh Téméxw (Stó:ló)
- sc'əwaθenaʔt təməxʷ (Tsawwassen)
- Semiahmoo
- sef' ilwetaʔt təməxʷ (Tseil-Waututh)
- Skwxwú7mesh-ulh Temixw (Squamish)
- sq' əc' iy' aʔt təməxʷ (Katzie)
- Stz'uminus
- Tulalip
- xʷməθkʷəy'əm

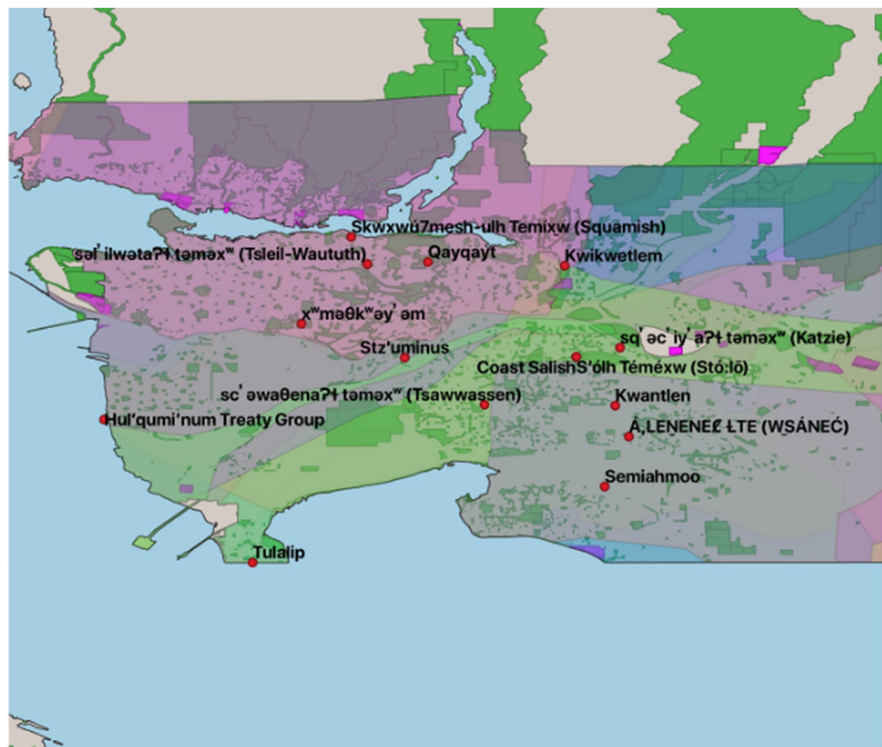
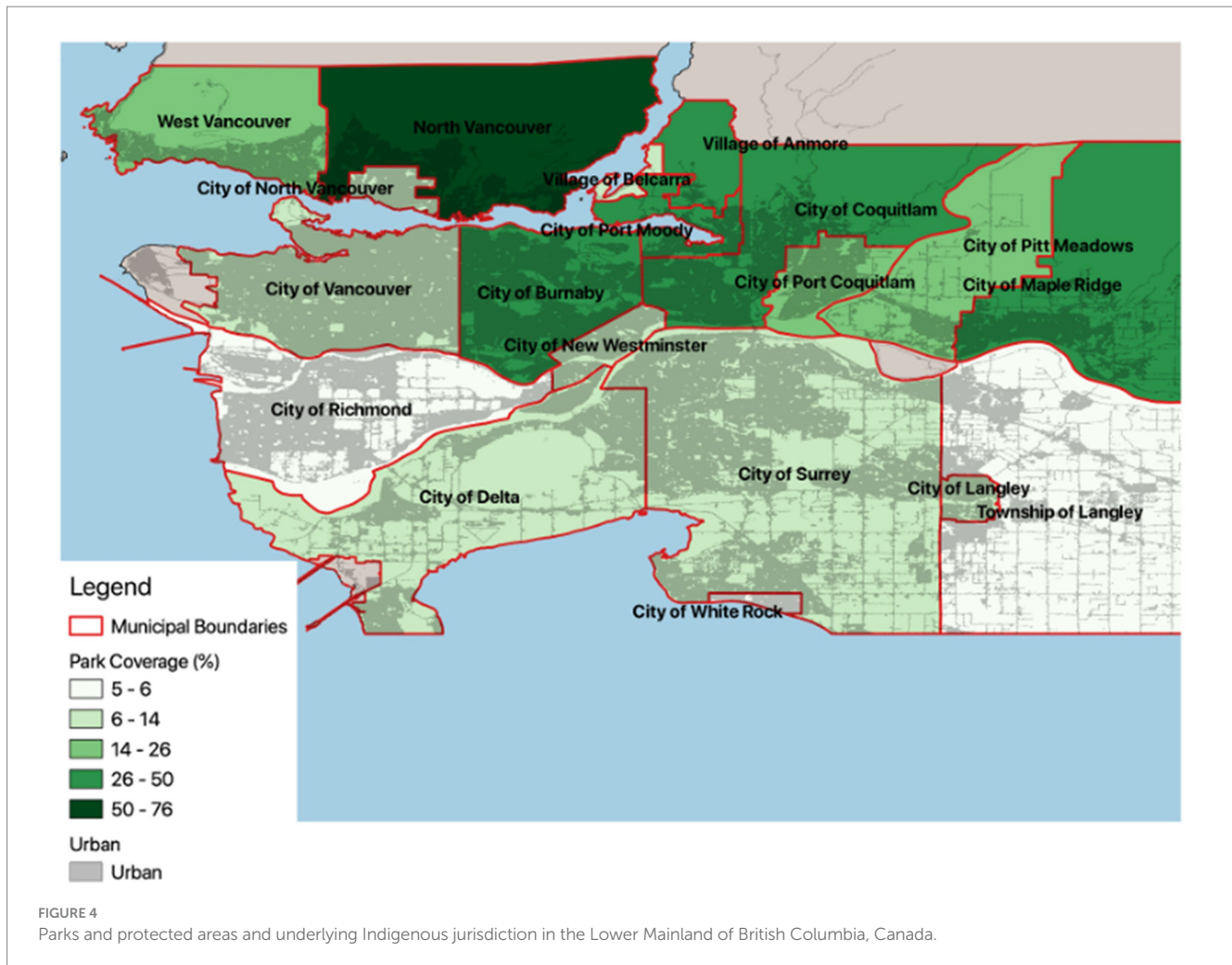


FIGURE 3 Spatial relationship between Indigenous communities, urban areas, parks and protected areas and urban municipalities in the Lower Mainland region of British Columbia, Canada.



- Size of Area of Interest: 875 ha
- City of Windsor parks and natural areas, and adjacent lands: 480 ha
- Town of LaSalle parks and natural areas, and adjacent lands: 244 ha
- Province of Ontario: 109 ha
- Hydro One: 14 ha
- Institutional: 15 ha
- Federal: 13 ha

The Ojibway Prairie Complex is situated within the traditional territory of the Three Fires Confederacy of First Nations; Treaty 2 Territory. It encompasses five adjacent natural areas across approximately 875 ha as well as institutional and industrial lands owned by the Province of Ontario and the federal government: the Ojibway Prairie Provincial Nature Reserve, Ojibway Park, Tallgrass Prairie Heritage Park, Spring Garden Natural Area, and the Black Oak Heritage Park, all located in Windsor, Ontario, and the nearby Town of LaSalle.

## 4.2 History

The pre-European contact history of the Ojibway Prairie Complex remains largely unknown in written sources. However,

several Indigenous camps are situated within a few kilometers of Ojibway Park along Turkey Creek and its tributaries. These seasonal camps were historically utilized for timber harvesting. Additionally, early explorers along the Detroit River reported Huron Indian corn fields (City of Windsor, 2024). In 1749, the French established the first significant European farming community along the Ontario side of the Detroit River. As a result of the Indian Act of 1876 and subsequent assimilation policies implemented throughout the 19th and 20th centuries, Indigenous Peoples were disconnected from the territory. The prairie was acquired by Windsor in 1957, leading to the creation of Ojibway Park in 1961 (City of Windsor, 2024).

## 4.3 Biodiversity and biocultural diversity

The Ojibway Prairie Complex is one of the most important natural areas in Canada due to the presence of prairie species that have been extirpated elsewhere. The tallgrass prairie, covering approximately 350.1 hectares of the Oak savanna ecosystem (City of Windsor, 2024), is one of Canada's most endangered ecosystems. Moreover, it serves as the only remaining habitat corridor connecting the Detroit River to the Ojibway Prairie. Within its boundaries, 293 animal species and 261 plant species are found. Among them, 28 species, such as Spiny



Softshell turtles and Barn Swallows, are regulated under provincial and/or federal species at risk legislation. The local community has been actively advocating for the preservation of this iconic and threatened ecosystem, recognizing its importance for nature conservation and climate change mitigation.

## 4.4 Governance

The Ojibway Park, Tallgrass Prairie Heritage Park, Spring Garden Natural Area, and Black Oak Heritage Park are administered by the Ojibway Nature Center, under the City of Windsor's Department of Parks and Recreation. The management of the Ojibway Prairie Provincial Nature Reserve falls under Ontario Parks' responsibility. In interviews, Indigenous community members have expressed that their role as partners in collaboration is often limited to specific consultations, with little or no recognition given to Indigenous co-governance or decision-making in park governance.

## 4.5 Local Indigenous perspectives

The following are key points paraphrased from interviews with Indigenous partners in the project. They help demonstrate the complex ecological, biophysical, cultural, spiritual and livelihood importance of the area.

- The Ojibway Prairie Complex in Windsor holds immense cultural and historical significance. It has been inhabited by people for generations, fostering a deep connection to the land. The local community, including our members, resides in the city and shares a strong bond with this area. This cultural significance is evident through the presence of aboriginal camps and early farming communities, showcasing the complex's historical importance. Recognizing the cultural significance, it is crucial to involve Indigenous Peoples in the selection, planning, and management of urban parks. This inclusive approach allows for the expression of Indigenous rights, responsibilities, and self-determination, promoting reconciliation and a thriving community.
- The Ojibway Prairie Complex holds great ecological importance. The tallgrass prairie ecosystem within the complex is one of Canada's most endangered ecosystems. Covering a significant area, it acts as a vital habitat corridor linking the Detroit River to the Ojibway Prairie. The complex supports a diverse range of plant and animal species, including those that are provincially or federally protected. This ecological diversity highlights the significance of the complex in terms of nature conservation and climate change mitigation efforts. Preserving this unique ecosystem not only ensures the survival of endangered species but also contributes to the overall well-being of our environment.
- The significance of the Ojibway Prairie Complex extends beyond biophysical indicators. The land holds a rich history and a profound relationship with the people that transcends tangible measures. The local community recognizes and respects the spiritual importance of the complex, perceiving everything within it to have a spirit. Efforts are being made to protect the spirit of the waters by acknowledging their personhood and emphasizing the deep connection between culture, spirituality,

and the environment. This spiritual connection adds another layer of significance to the complex, further reinforcing the need for its preservation and sustainable management.

- Ojibway Prairie Complex is of immense significance both culturally and ecologically. It preserves Indigenous traditions, fosters relationships, and provides a platform for the expression of Indigenous rights and self-determination. Ecologically, it serves as a crucial habitat corridor, supporting a diverse range of plant and animal species, including endangered ones. Moreover, the complex's significance extends beyond the physical realm, acknowledging the deep spiritual connection between people and the land. By recognizing and safeguarding the Ojibway Prairie Complex, we honor its cultural heritage, conserve its unique ecosystem, and nurture the bond between people and nature.

## 5 Case study: Blue Mountain-Birch Cove Lakes, Halifax, Nova Scotia

### 5.1 Area of interest

- Urban Area: Halifax, Nova Scotia
- Map: <https://pcweb2.azureedge.net/-/media/WET4/pun-nup/potentiels-candidates/halifax/carte-1-map.jpg>
- Size of Area of Interest: 2,304 ha
- Province of Nova Scotia (Protected Wilderness Area): 1,767 ha
- Halifax Regional Municipality: 317 ha
- Nova Scotia Nature Trust: 220 ha

Blue Mountain-Birch Cove Lakes (BMBCL) is situated within the ancestral and unceded territory of the Mi'kmaq people on the western edge of the city of Halifax, Nova Scotia. Spanning an area of approximately 2,304 hectares, it comprises Acadian Forest, wetlands, and a system of lakes and headwaters.

### 5.2 History

The area is covered under early Peace and Friendship Treaty of the 1700s which upholds Indigenous access and use of animals and plants, without interference from the Canadian government. For nearly 50 years, the Birch Cove Lakes area has been recognized by the City of Halifax as an important natural area worth protecting due to its biodiversity and other ecological values. The Metropolitan Area Planning Committee (MAPC) study of 1971 identified it as a high priority for conservation. Collaborative efforts involving the Nova Scotia government, Halifax Regional Municipality (HRM), the Nova Scotia Nature Trust, trail groups, Friends of Blue Mountain-Birch Cove Lakes, and other partners are underway to plan and manage the wilderness area and to establish a larger regional park with recreational opportunities.

### 5.3 Biodiversity and biocultural diversity

The Blue Mountain-Birch Cove Lakes area in Halifax is an exceptional example of a remnant natural habitat within a highly

fragmented and urbanized landscape. The region boasts a wide range of ecological features including ancient forests, wetlands, rocky terrains, flowing rivers, and picturesque lakes, all of which contribute to vital ecological corridors for wildlife. This area serves as a sanctuary for over 150 bird species, including several that are threatened or endangered like the Canada Warbler, Olive-sided Flycatcher, and Common Nighthawk. Additionally, it provides crucial habitat for the Mainland Moose, a species at risk of extirpation, that holds deep cultural significance for the Mi'kmaq people. Other culturally significant species in BMBCL include Bloodroot, Bigtooth Aspen, Ostrich Fern, Creeping Snowberry, Staghorn Sumac, and Wild Cucumber. The ecological importance of this area is further underscored by the maintenance of traditional harvesting activities by Mi'kmaq Peoples, such as hunting, fishing, and the harvesting of medicinal plants. Preserving and conserving this unique landscape is of utmost importance to ensure the protection of its ecological value and cultural heritage.

## 5.4 Governance

The Blue Mountain-Birch Cove Lakes wilderness area is an integral part of a larger regional parks system that the Halifax Regional Municipality (HRM) is actively working on establishing. This endeavor involves acquiring land and collaborating with partners such as the Nova Scotia Nature Trust and Nova Scotia Environment. Most of the provincial lands within the Blue Mountain-Birch Cove Lakes area are presently designated and protected under the Wilderness Areas Protection Act. These lands are managed by Nova Scotia Environment in collaboration with the Department of Natural Resources. Additionally, there is an adjacent 16-hectare area of Crown land that is currently under lease with the Maskwa Aquatic Club. The Department of Natural Resources (DNR) oversees the administration of these leased lands.

## 5.5 Local Indigenous perspectives

- The park's landscape offers diverse opportunities such as hiking, mountain peaks with lookout points, and beautiful forests. Fishing, a traditional activity with cultural significance, is also an important aspect for the Mi'kmaq community. The hope is that the park will enhance access to these activities and spaces.
- There is a strong interest in promoting cultural tourism within the park. Existing partnerships with Parks Canada have been successful in representing crafters, providing cultural tourism experiences, and operating information centers. The aim is to expand and strengthen these partnerships, allowing for more Mi'kmaq interpretation, job opportunities, and entrepreneurship within the park.
- Land access is a major concern, particularly in an urban area. Protecting and ensuring access to the land is a priority for the Mi'kmaq community. Harvesting activities, such as gathering sweet grass and medicinal plants, are essential cultural practices that should be reflected and supported within the park. The goal is to enable community members to engage in these activities for themselves, reducing the need to purchase traditional medicines.
- Initiating conversations with the Mi'kmaq community is the first step in understanding their knowledge, traditional uses, and

aspirations for the park. Important topics to explore include the existence of hidden petroglyphs, the protection of burial sites, and identifying potential uses of the park. These discussions will help shape the park's development and management to align with the community's needs and values.

- Indigenous priorities for Blue Mountain-Birch Cove Lakes include providing access to traditional spaces, promoting cultural tourism, addressing land access concerns, and engaging the community in shaping the park's future. The aim is to create a park that not only preserves the natural environment but also honors the cultural heritage of the Mi'kmaq people and supports their traditional and customary cultural practices.

## 6 Case study: Meewasin Valley, Saskatoon, Saskatchewan

### 6.1 Area of interest

- Urban Area: Saskatoon Region, Saskatchewan
- Map: <https://urbanparksask.ca/wp-content/uploads/2022/06/Mainmap-02.png>
- Size of Area of Interest: 6,696 ha

Meewasin Valley is a river valley corridor located along the South Saskatchewan River. The valley contains a network of municipal and provincial green space in the Saskatoon Region, including Wanuskewin Park, which has been a gathering place for Indigenous Nations of the Northern Plains for countless generations. Situated in the Meewasin Valley of Saskatoon, this park encompasses lands within Treaty 6 territory and serves as the traditional homeland of the Métis people.

### 6.2 History

The name "Meewasin" is derived from the Cree language and reflects the area's natural splendor and profound importance. Nestled above the Opimihaw Creek and the South Saskatchewan River near Saskatoon, Wanuskewin Heritage Park was established in consultation with Elders through ceremonial processes, earning their invaluable support. For thousands of years, this cherished gathering place has connected Indigenous Nations of the Northern Plains, carrying immense significance within the ancestral lands of the Métis and traversing Treaty 6 territory. As Canada's largest urban conservation zone, spanning 6,700 hectares, Wanuskewin serves as a vital ecological corridor. Notable initiatives include the planting of over 500 Misaskwatomina berry bushes along the Saskatchewan River as part of the Misaskwatomina Project and the creation of contemplative spaces guided by elder advice. These actions serve as inspiring examples of co-management.

### 6.3 Biodiversity and biocultural diversity

The Meewasin Valley is renowned for its exceptional biodiversity, providing a home to a remarkable array of 524 distinct flora and fauna species. Among these species, 57 are classified as at-risk at the federal

and/or provincial level, including the Northern Leopard Frog, Red-throated Loon, Whooping Cranes, Lesser Duckweed, Piping Plover, Monarch Butterfly, and Little Brown Myotis (Hooley, 2021). The presence of these diverse and vulnerable species underscores the ecological significance of the valley. Furthermore, the Meewasin Valley serves as an important wildlife corridor, facilitating the movement and migration of various animal species.

In addition to its ecological importance, the Meewasin Valley holds immense cultural significance. A comprehensive analysis of culturally significant sites has uncovered the presence of 77 archeological and paleontological sites within the valley (Hooley, 2021). These sites offer invaluable insights into the area's rich history and heritage, illuminating the deep connection between Indigenous communities and the park.

## 6.4 Governance

The management of Wanuskewin is currently overseen by the Meewasin Valley Authority, a conservation authority established by provincial legislation. This authority operates in collaboration with the province of Saskatchewan, the University of Saskatchewan, and the city of Saskatoon. The partnership was established through the Meewasin Valley Authority Act, which outlines the joint management of the South Saskatchewan River Basin. Currently, the park is managed by the Meewasin Valley Authority, a conservation authority established by provincial legislation in partnership with the province of Saskatchewan, the University of Saskatchewan, and the city of Saskatoon. Meewasin has been actively engaged in reconciliation efforts, fostering meaningful partnerships with Indigenous communities.

## 6.5 Local Indigenous perspectives

- Meewasin presents an opportunity for Indigenous rights, responsibilities, and relationships to thrive. It plays a significant role in advancing Indigenous self-determination and reconciliation.
- Meewasin can help to re-center Indigenous Peoples in nature conservation. To achieve this, Indigenous Peoples must be placed at the heart of the selection, creation, planning, development, and management of urban parks like Meewasin. Recognizing the significance of Indigenous presence and contributions is essential.
- It is crucial to acknowledge that all national parks, including Meewasin, are situated on traditional Indigenous lands. Engagements with these lands should serve as a constant reminder of their cultural and historical significance.
- While protection of the land is vital, it is equally important for parks to honor and support land-based traditional activities, such as harvesting of plants and animals as well as cultural practices. This recognition allows Indigenous communities to maintain their connections to the land and cultural heritage.
- Parks should evolve beyond being perceived solely as conservation units. Indigenous communities eagerly anticipate the opportunity to return to the land, not solely for tourism purposes but to live and work in harmony with their traditional territories.

## 6.6 Major policy initiatives

We identified nine major global and domestic policy agreements, tools, and guidance (e.g., reports) that are relevant to urban conservation in Canada (Table 2). Of the nine policy initiatives, four explicitly reference Indigenous Peoples:

### 6.6.1 The Kunming-Montreal global biodiversity framework

The Kunming-Montreal Global Biodiversity Framework (KMGBF) was negotiated and adopted by 196 countries at COP15 in Montreal in December 2022 following the expiry of the 2011–2020 Strategic Framework for Biodiversity and its Aichi Targets (CBD, 2022). The KMGBF acknowledges Indigenous Peoples' rights over lands, territories, and resources and aims to ensure full, equitable, and effective participation by Indigenous Peoples in decision-making for biodiversity conservation (Target 21, CBD, 2022). Moreover, it suggests taking guidance from the traditional knowledge, and practices of Indigenous Peoples for effective governance, management, and biodiversity monitoring (Target 20, CBD, 2022). Target 3 provides a strong mandate for Indigenous-led area-based conservation, including IPCAs, that are established in Indigenous territory.

*Target 3: Ensure and enable that by 2030 at least 30 percent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.*

### 6.6.2 The pathway to Canada target 1 process

In response to the Aichi Targets and the calls for a paradigm shift in conservation approaches, the Government of Canada established the Target 1 Challenge to conserve 17% of terrestrial areas and inland water, and 10% of marine and coastal areas of Canada by 2020, through networks of protected areas and other effective area-based measures. Simultaneously, the Government of Canada also declared its commitment to the Truth and Reconciliation Commission's (TRC) Calls to Action, guided by the United Nations Declaration of Rights for Indigenous Peoples (Assembly, 2007; TRC, 2015). The Government of Canada created the Pathway to Canada Target 1 to bridge these conservation and reconciliation commitments and established the Canada Nature Fund to support Indigenous-led and other effective area-based conservation initiatives including IPCAs that contribute to achieving Canada Target 1 (Townsend and Roth, 2023). The Pathway explicitly mentions the creation and recognition of IPCAs as a mechanism to achieve the conservation and reconciliation goals in Canada. Since 2018, more than \$100 million has been invested in supporting the establishment of 27 IPCAs and 25 IPCA planning and capacity projects across the country under the Canada Nature Fund.

TABLE 2 Major global and national policy conservation agreements, processes and guidance with potential relevance to Urban IPCA establishment in Canada.

Policy initiative	Scale	Year	References and/or supports Indigenous-led conservation governance (e.g., IPCA establishment)	Relevant to urbanized landscapes	Comments
Convention on biological diversity cities and biodiversity outlook	International	2012	No	Yes. Explicit	Promotes urban conservation in partnership with Indigenous Peoples, but no explicit reference to Indigenous-led conservation governance.
Urban conservation practices in Canada: report of the house of commons standing committee of sustainable development and environment	Domestic	2013	No	Yes. Explicit	No reference to Indigenous Peoples or Indigenous-led conservation governance.
Pathway to Canada target 1 process	Domestic	2018	Yes	Yes. Implicit	Promotes conservation with Indigenous Peoples, including Indigenous-led conservation governance.
Indigenous circle of experts (ICE) report: we rise together	Domestic	2018	Yes	Yes. Implicit	Promotes conservation led by Indigenous Peoples, including Indigenous-led conservation governance
World economic forum BiodiverCities by 2030 report: transforming cities' relationship with nature	International	2022	No	Yes. Explicit	No reference to Indigenous Peoples or Indigenous-led conservation governance.
Kunming-Montreal global biodiversity framework	International	2022	Yes	Yes. Implicit	Promotes conservation with Indigenous Peoples, including Indigenous-led conservation governance.
Parks Canada national urban parks policy	Domestic	2023	Partially	Yes. Explicit	Promotes conservation with Indigenous Peoples, but no explicit reference to Indigenous-led conservation governance.
Canada's 2030 national biodiversity strategy	Domestic	2023	Unclear	To be decided	Currently in development, including consultation with Indigenous Peoples.

IPCAs can potentially fit into Target 1 either as a formally designated Protected Area or as Other Effective Area-Based Conservation Measures (OECM) depending on whether it meets globally accepted definitions and criteria (Zurba et al., 2019). OECMs are considerably more flexible than protected areas in upholding the rights of Indigenous Peoples to engage in customary practices, such as fishing, hunting and other types of cultural activities (Maxwell et al., 2020). OECMs deliver effective and long-term *in situ* conservation of biodiversity while enhancing cultural, spiritual, socio-economic, and other locally relevant values (Alves-Pinto et al., 2021; Gurney et al., 2021). The *One with Nature* (2018) report created through the Pathway to Target 1 process identifies the various governance models that can support IPCAs specifically. The partnership models highlighted in the report are (1) sole Indigenous governance; (2) Indigenous Peoples-government partnerships; (3) Indigenous Peoples-non-government Partnerships; and (4) Hybrid Partnerships between the Government and non-government partners.

### 6.6.3 Indigenous circle of experts report: we rise together

The Indigenous Circle of Experts (ICE) was established to provide recommendations and guidance into the Pathway to Canada Target 1 Process on how IPCAs can be created and managed to contribute toward achieving Canada Target 1 while respecting the rights, responsibilities, and priorities of Indigenous Peoples. The *Indigenous Circle of Experts* (2018) report which was produced through informed dialog with Indigenous Peoples across Canada defines IPCAs as ‘lands and waters where Indigenous governments have the primary role in protecting and conserving ecosystems through Indigenous laws, governance, and knowledge systems. This report also highlights the three key characteristics of IPCAs: (1) they are Indigenous-led; (2) they represent a long-term commitment to conservation; and (3) they elevate Indigenous rights and responsibilities. This report recognized IPCAs as an effective platform to contribute to the resurgence of Indigenous peoples in Canada as rights holders and to advance Indigenous-led conservation and reconciliation in Canada (Townsend and Roth, 2023).

The Conservation through Reconciliation Partnership (CRP) was formed to implement the recommendations from the ICE report (Townsend and Roth, 2023). This Indigenous-led network brings together a diverse range of partners such as Indigenous leadership, conservation agencies and organizations, academia, civil society, and communities to advance Indigenous-led conservation and Indigenous Protected and Conserved Areas (IPCAs) across Canada.

### 6.6.4 Parks Canada agency’s national urban parks program

The government of Canada launched the National Urban Parks Program in 2021 to contribute to The Pathway to Canada Target 1 by creating a network of national urban parks. This program is administered by the Parks Canada Agency (PCA). Parks Canada is engaging with municipalities, provinces, Indigenous partners, and conservation organizations to identify potential urban park sites in various cities across Canada. The network is envisioned to include areas managed under a range of flexible governance models, including federally administered places, third-party administered places, and partnership models. Candidate areas identified under the program

have so far been identified in Saskatoon (SK), Winnipeg (MB), Halifax (NS), Windsor (ON), the greater Edmonton area (AB), Colwood (BC), and Montreal (QC).

The National Urban Parks Policy is being developed by Parks Canada in consultation with Indigenous Peoples, stakeholders, and the public (Parks Canada Agency, Government of Canada, 2024). When completed, it will be the primary mechanism to inform the designation of new national urban parks in Canada. This policy focuses on three key themes for national urban parks: (1) contribution to the national conservation targets; (2) connecting Canadians to nature and (3) reconciliation with Indigenous Peoples. Parks Canada aims to work closely with Indigenous partners to provide space for Indigenous stewardship, weaving Indigenous knowledge, and promoting Indigenous voices in the proposed urban parks. However, there is currently a lack of clarity on how this policy will support Urban IPCA creation and management in Canada.

## 7 Discussion

There is greater awareness today of the importance of protecting remnant green space for urban biodiversity as well as beneficial ecosystem services, such as flood protection and adaptation to extreme heat with climate change (Albrecht, 2013). Indigenous Peoples and Local Communities (IPLC) are involved in urban greening projects (e.g., ecological restoration, Hernandez and Vogt, 2022) in support of conservation and climate objectives, but conventional protected areas tend to restrict Indigenous governance to stakeholder or advisory roles while Crown agencies hold authority, even in co-management agreements (Nadasdy, 1999; Townsend and Roth, 2023). Furthermore, some Indigenous land practices, such as cultural burning, have been criminalized thereby denying Indigenous Peoples the opportunity to engage in customary stewardship activities, despite their environmental benefits. As noted by one of the Indigenous conservation leaders we interviewed, “*These are things that have been banned by governments and society, but they are slowly kind of making a comeback.*”

While no urban Indigenous Protected and Conserved Areas have yet to be established in Canadian cities, experience with IPCAs in other geographies has shown that they fundamentally differ from state-led processes in their governance, emphasis on Indigenous knowledge and legal systems, and acceptance of sustainable customary use, such as spiritual, cultural, economic and subsistence functions (Finegan, 2021; Mansuy et al., 2023; Townsend and Roth, 2023). As noted by Hernandez and Vogt (2022), p. 38 “*to Indigenous restoration [and other environmental stewardship], Indigenous peoples require a seat not just at the table but at the head of the table.*” Indeed, though IPCAs are defined by Indigenous Peoples themselves, they share in common the centering of Indigenous leadership as well as a long-term commitment to conservation (Townsend and Roth, 2023). Under Indigenous leadership, IPCAs expand the conventional notion and purpose of area-based conservation beyond primarily ecological goals, such as the protection of endangered species habitat or the restoration of degraded ecosystems. For example, investigations of IPCAs in Canada and in other countries emphasize the importance of Indigenous-led conservation as a means of revitalizing language and culture, fostering the intergenerational transfer of biocultural knowledge from elders to youth, restoring food security, as well as

re-establishing healthy relationships with non-human species (Tran et al., 2020; Mansuy et al., 2023; Townsend and Roth, 2023).

The few published case studies of Indigenous-led urban conservation in Canada and other countries report a similar emphasis on protected green space as critical to healing and the improved wellbeing of urban Indigenous populations (e.g., Wendt and Gone, 2012; Finegan, 2021; Hernandez and Vogt, 2022), which suffer from severe inequities in health compared to their non-Indigenous neighbors (King et al., 2009; Place, 2012; Senese and Wilson, 2013). A growing body of evidence suggests that access to city parks offers a variety of physical, psychological, and social benefits and enhances the health and overall well-being of urban residents (Wendt and Gone, 2012; Shanahan et al., 2019; He et al., 2022). Indigenous connections with land and nature are central to Indigenous Peoples' sense of identity, resilience, and spiritual wellbeing and are an important contribution to Indigenous health (Richmond and Ross, 2009; Wendt and Gone, 2012; Hatala et al., 2020). Despite these clinical and wider holistic benefits, Hatala et al. (2020) and others have shown that urban Indigenous populations, particularly Indigenous youth, are often excluded from experiencing city parks or other green spaces in culturally meaningful ways. The long history of settler colonialism in urbanized Canada, racism, and the criminalization of Indigenous Peoples' presence in parks (e.g., bans on under-housed people living in parks) serve to discourage and alienate Indigenous Peoples from urban parks and green space and the benefits they provide (Ungar et al., 2008; Hatala et al., 2020). For example, in his case study of urban parks in Saskatoon and Portland, Finegan (2021) cites examples of how Indigenous Peoples are unable to practice ceremony in local parks due to a lack of acceptance for sacred traditions, interruption (i.e., curiosity) and in some cases harassment by the public and park managers. He cites Peters and Lafond (2013) who found that half of the Indigenous respondents in Toronto were unable to find "adequate or appropriate" space in the city to conduct ceremony. It is for this reason, that one primary motivation for the establishment of IPCAs, including in urban areas, is the need for cultural facilitates (e.g., culture camps for youth) and other safe spaces for Indigenous Peoples to practice cultural and sacred traditions, which are not a priority for park managers. Conversely, ceremonial sites feature prominently in examples of Indigenous-led urban conservation, such as the Daybreak Star Indian Cultural Center, which was established by urban Indigenous activists following their peaceful occupation of Discovery Park, in Seattle Washington, in 1977 (Hernandez and Vogt, 2022). Seattle leased 20 of the 534 acres of the park to an Indigenous non-profit which manages the land for both ecological and cultural values for the urban Indigenous community in the city. The priority placed on new cultural facilities and programming was also emphasized in our interview with an Indigenous conservation leader about the possibility of a new urban park in Halifax: "We're really hoping that through our partnership and hopefully co-management of this space our people have access to activities that they want such as a healing lodge that people can access with land-based learning."

## 7.1 Emerging opportunities in conservation policy

While IPCAs do not require recognition by colonial institutions or Crown protection to exist (Townsend and Roth, 2023) give

numerous examples of IPCAs established by Indigenous Nations under Indigenous legal traditions), we identified several international and domestic policy agreements, tools and guidance that can facilitate Indigenous-led conservation in urban areas. For example, there have been growing references to Indigenous conservation since the publication of the Convention on Biological Diversity's Cities and Biodiversity Outlook report in 2012, which was the first global policy initiative to draw attention to urban Indigenous Peoples and their contribution to urban greening. Indigenous Peoples, their knowledge systems and territories have featured prominently in subsequent global conservation agreements and policy processes, such as the Kunming-Montreal Global Biodiversity Framework (KMGBF) and its ambitious target to conserve 30% of terrestrial, inland waters, coastal and marine areas by 2030 (CBD, 2022). While earlier government initiatives in Canada, such as the 2013 Standing Committee on Environment and Sustainable Development's Report on urban conservation (Albrecht, 2013) failed to recognize Indigenous conservation leadership, more recent policy agreements, tools and guidance emphasize partnerships with urban Indigenous communities in conservation (Table 2).

For example, the federal government's nascent National Urban Parks Program and developing policy provide a potential pathway for the establishment of new urban Indigenous Protected and Conserved Areas (IPCAs) in Canadian cities with the recognition and support of federal agencies, such as Parks Canada (PCA). In 2023, PCA released a discussion paper which suggests that an urban IPCA that is administered by an Indigenous government could be designated as a national urban park under the new federal program. While this is a positive development, the PCA draft policy does not sufficiently foreground Indigenous governance and Indigenous knowledge that is consistent with best practices (e.g., see the Indigenous Circle of Experts, 2018). For example, Indigenous Peoples hold specific rights and responsibilities yet their participation as decision-makers is not clearly understood nor articulated in the federal program. At times, PCA's background and discussion paper for its developing national urban parks policy treats Indigenous Peoples as simply stakeholders alongside other interests, including civil society or other organizations, rather than "self-determining nations with inherent rights and governance systems that pre-date colonial structures" (Reo et al., 2017, p. 58). Until recently, this viewpoint was commonplace within the conservation sector (both government and non-government) in Canada, leading to missed opportunities for meaningful collaboration with Indigenous partners, and in some cases, even conflict over the protection of wildlife habitat (e.g., woodland caribou) and the establishment of new protected areas (e.g., Canadian Boreal Forest Agreement; Smith, 2015). Indigenous Peoples' political authority, title, rights and responsibilities as well as their laws, values and knowledge systems are critical to the success of conservation (Artelle et al., 2019; Townsend and Roth, 2023). Therefore, Indigenous governments need to play an integral role in the governance, operation, and management of future national urban parks if they are to be considered true IPCAs. An IPCA must be Indigenous-led (Indigenous Circle of Experts, 2018) and thus the PCA national parks policy and program must not only recognize Indigenous pathways for urban conservation but also provide adequate funding and capacity to Indigenous Nations interested in participating in the National Urban Parks Program.

## 7.2 Integrating Western science and Indigenous knowledge systems in urban conservation

We found that Indigenous knowledge was emphasized in the literature, upheld in policy agreements such as the KMGBE, and raised by some of the participants we interviewed. For example, one Mi'kmaq participant emphasized the importance of cultural practices “to balance Western approaches to conservation with our own approaches to conservation.” Other studies have similarly drawn attention to how Indigenous worldviews, beliefs, and understandings, which are acquired through long-term relationships with land, can make for better conservation outcomes (Kelbessa, 2013; Artelle et al., 2019; Reid et al., 2021). For example, there is robust evidence demonstrating that biodiversity thrives in places where Indigenous Peoples continue to be actively involved in the customary stewardship of territory and wildlife according to traditional social, physical, and spiritual understandings (Nepstad et al., 2006; Maffi and Woodley, 2010). In Canada, there have been some efforts to integrate Indigenous knowledge and Western science in policy and regulatory processes about the environment, including conservation. For example, Aboriginal Traditional Knowledge (ATK) is considered in federal species listing decisions and recovery planning under the Species at Risk Act (Hill et al., 2019). Canada has also made commitments to respect and uphold Indigenous knowledge in area-based conservation policy, such as the Pathway to Canada Target 1 Process (2021) and more recently the draft National Urban Parks Policy (Parks Canada Agency, Government of Canada, 2024). However, as noted by Indigenous fisheries scientist Andrea Reid (Reid et al., 2021), Western science has not only taken precedence over Indigenous knowledge systems in conservation, but it has also tended to reinforce embedded power imbalances to the detriment of Indigenous communities. This “serves only to strengthen Western science for its own ends and to concentrate power in administrative centers, rather than in [Indigenous] communities” (Nadasdy, 1999, p. 15). The coexistence and complementarity of both Western science and Indigenous Knowledge Systems in the management of IPCAs is an important departure from how knowledge generation is typically employed to inform conservation decision-making. Colonial conservation policy and practice, such as actions to recover endangered species or the day-to-day management of parks and protected areas, have long reinforced the misguided belief that management expertise is exclusively informed by Western science.

In recent years, Indigenous-led frameworks that braid together both Western science and Indigenous knowledge systems have emerged and are being explicitly used to guide conservation activities, such as the management of IPCAs as well as to generate new research on wildlife populations, the impacts of climate change and other environmental areas. One such framework is Etuaptmumk (Mi'kmaq for ‘Two-Eyed Seeing’), developed by Mi'kmaq Elder Albert Marshall in 2004 for unifying knowledge systems (Reid et al., 2021). Elder Marshall describes Two-Eyed Seeing as: “learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western knowledges and ways of knowing, and to use both these eyes together, for the benefit of all” (Reid et al., 2021, p. 245). Case studies of urban Indigenous conservation have shown that the failure to respect Indigenous knowledge can lead to conflict with park managers as well as other

park users. Simpson and Bagelman (2018) give an example of the tensions that have arisen between local conservationists and the Indigenous-run Lekwungen Food Systems (LFS) Project in Meegan (also known as Beacon Hill Park in Victoria, British Columbia). While the conservation group’s goal is to preserve native ecosystems from human intervention, the LFS is trying to re-establish the role of Indigenous customary stewardship, such as cultural burning and removing native plants that compete with preferred food species, noting that their ancestors actively managed Meegan for millennia as an Indigenous agroecological system. Despite their long-term relationship with the ecosystems in the park, on occasions the Lekwungen-led group has been reprimanded by park managers and accused of disturbing the park’s native flora by harvesting Kwetlal (*Camassia* spp.); a cultural keystone species and ancestral food crop.

## 7.3 Future research and policy recommendations

Canada struggles with a particularly difficult history of colonial conservation as many parks and protected areas, including in urban regions, were established against the wishes of local Indigenous Peoples, leading to the forced removal of communities in some cases and alienation from important food sources, cultural sites, and livelihood activities (Dominguez and Luoma, 2020; Youdelis et al., 2021). In this paper, we have argued that Indigenous-led conservation, including urban IPCAs, overcomes many of the institutional problems of colonial models of conventional park planning and provides opportunities for Indigenous leadership in urban conservation grounded in rights and responsibilities and reflective of traditional knowledge systems and biocultural priorities. Our research and findings would have benefited from a larger number of interview participants and/or the wider perspectives of Indigenous Peoples using survey methods. In addition, our study design suffers from the same limitations raised by Finegan (2021) in his analysis of Indigenous participation in parks in Saskatoon and Portland. Rather than asking participants to reflect on current or proposed urban conservation policy, such as new urban national parks, it would have been more informative to have asked participants to describe their desires and vision for urban greening or to probe how existing urban parks can better support them (Finegan, 2021). It is possible that the reluctance by some Indigenous conservation leaders to participate in our study was because urban national park planning is still in an early stage in Canada and the federal government has yet to begin formal consultations with Indigenous Nations.

Despite these limitations, we believe this study draws attention to policy and governance gaps in urban conservation related to Indigenous Peoples and identifies several areas that need further investigation to understand whether IPCAs are a viable alternative to conventional urban parks. Namely, despite its adoption of the KMGBE, which recognizes and upholds Indigenous territories, rights and governance by Indigenous Peoples and Local Communities (IPLC) in conservation, the Canadian government has yet to develop a clear policy direction in support of Indigenous conservation leadership in urban areas. Even though Indigenous-led conservation is still at an early stage in urban regions, several higher-level elements for policy development can be applied from where Indigenous-led conservation, such as Guardians Programs and IPCAs, have been successfully

established elsewhere, as well as the [Indigenous Circle of Experts \(2018\)](#) recommendations. These include:

1. The Canadian government must prioritize the participation of Indigenous Nations and organizations in its National Urban Parks Program, including its goal to establish six new urban parks by 2025.
2. The Canadian government should formally recognize urban IPCAs as an alternative governance option for new urban protected areas, including proposed national parks, and should provide funding and other capacity support for local Indigenous Nations that are interested in UIPCA establishment within their territories.
3. City Parks departments and other Crown agencies should partner with local Indigenous Nations and organizations to Indigenize existing urban parks and protected areas. This includes providing cultural facilities for Indigenous Peoples to participate in ceremony and other cultural traditions, the inclusion of Indigenous place names and expanding management programs beyond the current focus on ecological, horticultural and recreational objectives, to include biocultural stewardship developed under Indigenous guidance (e.g., restoration of culturally significant species and spaces and the revitalization of language/knowledge systems on the land).

These policy recommendations will need to be informed by further research on the barriers and opportunities for Indigenous Peoples in advancing their own forms of conservation governance in urban areas. Key research questions and themes that need to be investigated include:

1. What are the critical enabling measures necessary for successful urban IPCA establishment (e.g., to what extent is the recognition of Indigenous rights by Crown governments or the revitalization of Indigenous languages and knowledge in urban areas important?).
2. How can traditional and customary practices (e.g., the harvesting of plants and animals) be accommodated and supported in urban IPCAs, including the important role of protected urban green space for ceremony?
3. How should Indigenous knowledge be considered alongside Western science in biodiversity monitoring programs, invasive species management, and the restoration of biocultural activities such as cultural burning or other forms of customary stewardship related to Indigenous food and other environmental systems?
4. How should the history and ongoing harms of settler-colonialism (e.g., systemic racism, deterritorialization, green gentrification) be addressed to decolonize existing urban parks and protected areas, beyond cosmetic changes?

[Townsend and Roth \(2023\)](#) analyzed the emergence of several IPCAs in rural and northern Canada and identified roadblocks and challenges to IPCA establishment with resource extraction laws and legislation, financing, relationships and capacity, and jurisdiction and governance. In addition to these challenges, urban IPCAs may face unique barriers in urbanized landscapes, such as intense competition with other land use demands for available space (e.g., housing, infrastructure), complex and unclear jurisdiction (including the dominance of private lands) as well as settler colonial ontologies that

serve to delegitimize urban Indigeneity and “erase Indigenous Peoples’ ties to territory now occupied by cities” ([Finegan, 2021](#)). The significance of these specific challenges to urban IPCA establishment also needs to be examined, as well as the possibility that other more conventional governance arrangements, such as co-management with Crown governments, may be more politically feasible while addressing Indigenous priorities.

## 8 Conclusion

Canada’s predominantly urban society and the increasing threats to biodiversity in urbanized regions highlight the significance of prioritizing urban nature conservation ([Hirsh-Pearson et al., 2022](#)). Supporting the establishment and success of urban Indigenous Protected and Conserved Areas (UIPCAs) and Indigenous conservation leadership, more broadly, advances new models of urban conservation that address the protection of nature, while also prioritizing access and the use of urban green space by the growing urban Indigenous population in Canadian cities. The desire to reconnect with nature and Indigenous cultural teachings was emphasized in all the interviews we conducted with Indigenous conservation leaders in this study as a driving imperative for the protection of urban green space. As noted by an Indigenous conservation leader that we interviewed in Saskatoon: “*When you are living in the city, especially as an Indigenous person, you are so disconnected from those [natural] experiences.... we are hoping to revitalize some of those things.*”

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by University of Guelph, Research Ethics Board (REB Certificate 22–08-10). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

FM: Conceptualization, Formal analysis, Funding acquisition, Methodology, Project administration, Supervision, Visualization, Writing – original draft, Writing – review & editing. HJ: Formal analysis, Methodology, Writing – original draft. JB: Writing – original draft. RR: Conceptualization, Funding acquisition, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## References

- Albrecht, H. (2013). Urban conservation practices in Canada. In: *Report of the standing committee on environmental and sustainable development*.
- Albuquerque, U. P., Ladio, A., Almada, E. D., Vandebroek, I., Silva, M. T. P., and da Fonseca-Kruel, V. S. (2023). Exploring biocultural diversity in urban ecosystems: an ethnobiological perspective. *Ethnobiol. Conserv.* 12, 1–12. doi: 10.15451/ec2023-06-12.10-1-12
- Alves-Pinto, H., Geldmann, J., Jonas, H., Maioli, V., Balmford, A., Ewa Latawiec, A., et al. (2021). Opportunities and challenges of other effective area-based conservation measures (OECMs) for biodiversity conservation. *Perspect. Ecol. Conserv.* 19, 115–120. doi: 10.1016/j.pecon.2021.01.004
- Artelle, K. A., Zurba, M., Bhattacharyya, J., Chan, D. E., Brown, K., Housty, J., et al. (2019). Supporting resurgent indigenous-led governance: a nascent mechanism for just and effective conservation. *Biol. Conserv.* 240:108284. doi: 10.1016/j.biocon.2019.108284
- Assembly, U. G. (2007). *United Nations declaration on the rights of indigenous peoples*.
- CBD. (2022). *Decision adopted by the conference of the parties to the convention on biological diversity*. In: 15/4 Kunming-Montreal global biodiversity framework.
- City of Windsor. (2024). *Ojibway nature Centre*. Available at: <https://www.ojibway.ca/index.htm> (Accessed January 31 2024).
- Constitution Act. (1982). Available at: <https://laws-lois.justice.gc.ca/eng/const/page-12.html#h-39> (Accessed January 31, 2024).
- Corrigan, C., Bingham, H., Shi, Y., Lewis, E., Chauvenet, A., and Kingston, N. (2018). Quantifying the contribution to biodiversity conservation of protected areas governed by indigenous peoples and local communities. *Biol. Conserv.* 227, 403–412. doi: 10.1016/j.biocon.2018.09.007
- Cullingworth, J. B. (2017). *Urban and regional planning in Canada*. New Brunswick, USA: Transaction Books.
- Darby, M., Deur, D., and Turner, N. (2011). "The intensification of Wapato (*Sagittaria latifolia*) by the Chinookan people of the lower Columbia River" in *Kept it living: Traditions of plant use and cultivation on the northwest coast of North America*. eds. D. Deur and N. Turner (Seattle: University of Washington Press), 194.
- Dietz, S., Beazley, K. F., Lemieux, C. J., St Clair, C., Coristine, L., Higgs, E., et al. (2021). Emerging issues for protected and conserved areas in Canada. *Facets* 6, 1892–1921. doi: 10.1139/facets-2021-0072
- Dominguez, L., and Luoma, C. (2020). Decolonising conservation policy: how colonial land and conservation ideologies persist and perpetuate indigenous injustices at the expense of the environment. *Land (Basel)* 9:65. doi: 10.3390/land9030065
- Ellis, E. C., Beusen, A. H. W., and Klein Goldewijk, K. (2020). Anthropogenic biomes: 10,000 BCE to 2015 CE. *Land (Basel)* 9:129. doi: 10.3390/land9050129
- Federation of Canadian Municipalities. (2023). *Big City mayors' caucus*. Available at: <https://fcm.ca/en/about-fcm/big-city-mayors-caucus> (Accessed January 31, 2024).
- Finegan, C. (2021). How can urban parks support urban indigenous peoples: exploratory cases from Saskatoon and Portland. *Aborig. Policy Stud.* 9, 25–48. doi: 10.5663/aps.v9i2.29381
- Garnett, S. T., Burgess, N. D., Fa, J. E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C. J., et al. (2018). A spatial overview of the global importance of indigenous lands for conservation. *Nat. Sustain.* 1, 369–374. doi: 10.1038/s41893-018-0100-6
- Graham, K. A., and Peters, E. (2002). "Aboriginal communities and urban sustainability" in *The federal role in Canada's cities: Four policy perspectives. Discussion paper F/27*. eds. F. L. Seidle, K. A. Graham, J. D. Hulchanski, M. Pappilon and A. M. Séguin (Ottawa: Canadian Policy Research Networks Inc.)

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## Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fhumd.2024.1340379/full#supplementary-material>

- Gurney, G. G., Darling, E. S., Ahmadi, G. N., Agostini, V. N., Ban, N. C., Blythe, J., et al. (2021). Biodiversity needs every tool in the box: use OECMs. *Nature (London)* 595, 646–649. doi: 10.1038/d41586-021-02041-4
- Hatala, A. R., Njeze, C., Morton, D., Pearl, T., and Bird-Naytowhow, K. (2020). Land and nature as sources of health and resilience among indigenous youth in an urban Canadian context: a photovoice exploration. *BMC Public Health* 20:538. doi: 10.1186/s12889-020-08647-z
- He, M., Wang, Y., Wang, W. J., and Xie, Z. (2022). Therapeutic plant landscape design of urban forest parks based on the five senses theory: a case study of Stanley Park in Canada. *Int. J. Geoheritage Parks* 10, 97–112. doi: 10.1016/j.ijgeop.2022.02.004
- Hernandez, J., and Vogt, K. (2022). Indigenizing restoration: indigenous lands before urban parks. *Hum. Biol.* 92, 37–44. doi: 10.1353/hub.2017.0084
- Hill, C. J., Schuster, R., and Bennett, J. R. (2019). Indigenous involvement in the Canadian species at risk recovery process. *Environ. Sci. Pol.* 94, 220–226. doi: 10.1016/j.envsci.2019.01.017
- Hirsh-Pearson, K., Johnson, C. J., Schuster, R., Wheate, R. D., and Venter, O. (2022). Canada's human footprint reveals large intact areas juxtaposed against areas under immense anthropogenic pressure. *Facets (Ottawa)* 7, 398–419. doi: 10.1139/facets-2021-0063
- Hooley, G. (2021). *State of the valley: Pathway to Progress, Meewasin Valley assessment report, 2014–2018*. Saskatoon: Meewasin Valley Authority.
- Indigenous Circle of Experts. (2018). "we rise together: Achieving pathway to Canada target 1 through the creation of indigenous protected and conserved areas in the Spirit and practice of reconciliation", in: *Documents collection*. Gatineau, QC, CA: Government of Canada.
- Kelbessa, W. (2013). Indigenous knowledge and its contribution to biodiversity conservation. *Int. Soc. Sci. J.* 64, 143–152. doi: 10.1111/issj.12038
- King, M. P., Smith, A. M. D., and Gracey, M. P. (2009). Indigenous health part 2: the underlying causes of the health gap. *Lancet* 374, 76–85. doi: 10.1016/S0140-6736(09)60827-8
- Lamb, C. T., Willson, R., Richter, C., Owens-Beek, N., Napoleon, J., Muir, B., et al. (2022). Indigenous-led conservation: pathways to recovery for the nearly extirpated Klinse-Za mountain caribou. *Ecol. Appl.* 32:e2581-n/a. doi: 10.1002/eap.2581
- Maffi, L., and Woodley, E. (2010). *Biocultural diversity conservation: A global sourcebook*. London: Earthscan.
- Mansuy, N., Staley, D., Alook, S., Parlee, B., Thomson, A., Littlechild, D. B., et al. (2023). Indigenous protected and conserved areas (IPCAs): Canada's new path forward for biological and cultural conservation and indigenous well-being. *Facets (Ottawa)* 8, 1–16. doi: 10.1139/facets-2022-0118
- Maxwell, S. L., Cazalis, V., Dudley, N., Hoffmann, M., Rodrigues, A. S. L., Stolton, S., et al. (2020). Area-based conservation in the twenty-first century. *Nature (London)* 586, 217–227. doi: 10.1038/s41586-020-2773-z
- McElwee, P., Ngo, H. T., Fernández-Llamazares, Á., Reyes-García, V., Molnár, Z., Guèze, M., et al. (2021). *Including indigenous and local knowledge in the work of the intergovernmental science-policy platform on biodiversity and ecosystem services (IPBES) global assessment: Outcomes and lessons for the future. 1st Edn*. Abingdon: Routledge, pp. 343–355.
- Mullenbach, L. E., Breyer, B., Cutts, B. B., Rivers, L., and Larson, L. R. (2022). An antiracist, anticolonial agenda for urban greening and conservation. *Conserv. Lett.* 15:n/a. doi: 10.1111/connl.12889

- Nadasdy, P. (1999). The politics of Tek: power and the "integration" of knowledge. *Arct. Anthropol.* 36, 1–18.
- National Association of Friendship Centers. (2022). *Our health, our voice: Advocating for urban indigenous peoples in distinctions based healthcare legislation*. Ottawa, ON: National Association of Friendship Centres.
- Nepstad, D., Schwartzman, S., Bamberger, B., Santilli, M., Ray, D., Schlesinger, P., et al. (2006). Contributed papers: inhibition of Amazon deforestation and fire by parks and indigenous lands. *Conserv. Biol.* 20, 65–73. doi: 10.1111/j.1523-1739.2006.00351.x
- One with Nature. (2018). *One with nature: a renewed approach to land and freshwater conservation in Canada*. Available at: <https://www.conservation2020canada.ca/home> (Accessed January 31, 2024).
- Parks Canada Agency, Government of Canada. (2024). *Toward a national urban parks policy – discussion paper*. Available at: <https://parks.canada.ca/pun-nup/politique-policy/discussion> (Accessed January 32, 2024).
- Pathway to Canada Target 1 Process. (2021). *Pathway to Canada target 1, conservation 2020*. Available at: <https://www.conservation2020canada.ca/home> (Accessed January 31, 2021).
- Peters, E. J. (2004). *Three myths about aboriginals in cities*. Ottawa, ON: Canadian Federation for the Humanities and Social Sciences.
- Peters, E., and Lafond, C. (2013). *I basically mostly stick with my own kind: First nations appropriation of urban space in Saskatoon, Saskatchewan*. Vancouver, Canada: University of British Columbia Press, pp. 88–109.
- Place, J. (2012). *The health of aboriginal people residing in urban areas*. Prince George, BC: National Collaborating Centre for Aboriginal Health.
- Reid, A. J., Eckert, L. E., Lane, J. F., Young, N., Hinch, S. G., Darimont, C. T., et al. (2021). "Two-eyed seeing": an indigenous framework to transform fisheries research and management. *Fish Fish.* 22, 243–261. doi: 10.1111/faf.12516
- Reo, N. J., Whyte, K. P., McGregor, D., Smith, M. A., and Jenkins, J. F. (2017). Factors that support indigenous involvement in multi-actor environmental stewardship. *AlterNative* 13, 58–68. doi: 10.1177/1177180117701028
- Richmond, C. A. M., and Ross, N. A. (2009). The determinants of first nation and Inuit health: a critical population health approach. *Health Place* 15, 403–411. doi: 10.1016/j.healthplace.2008.07.004
- Roos, C., Swetnam, T. W., Ferguson, T. J., Liebmann, M. J., Loehman, R. A., Welch, J. R., et al. (2021). Native American fire management at an ancient wildland-urban interface in the Southwest United States. *Proc. Natl. Acad. Sci.* 118:118. doi: 10.1073/pnas.2018733118
- Rotondi, M. A., O'Campo, P., O'Brien, K., Firestone, M., Wolfe, S. H., Bourgeois, C., et al. (2017). Our health counts Toronto: using respondent-driven sampling to unmask census undercounts of an urban indigenous population in Toronto, Canada. *BMJ Open* 7:e018936. doi: 10.1136/bmjopen-2017-018936
- Schuster, R., Germain, R. R., Bennett, J. R., Reo, N. J., and Arcese, P. (2019). Vertebrate biodiversity on indigenous-managed lands in Australia, Brazil, and Canada equals that in protected areas. *Environ. Sci. Pol.* 101, 1–6. doi: 10.1016/j.envsci.2019.07.002
- Senese, L. C., and Wilson, K. (2013). Aboriginal urbanization and rights in Canada: examining implications for health. *Soc. Sci. Med.* 91, 219–228. doi: 10.1016/j.socscimed.2013.02.016
- Shanahan, D. F., Astell-Burt, T., Barber, E. A., Brymer, E., Cox, D., Dean, J., et al. (2019). Nature-based interventions for improving health and wellbeing: the purpose, the people and the outcomes. *Sports (Basel)* 7:141. doi: 10.3390/sports7060141
- Simpson, M., and Bagelman, J. (2018). Decolonizing urban political ecologies: the production of nature in settler colonial cities. *Ann. Am. Assoc. Geogr.* 108, 558–568. doi: 10.1080/24694452.2017.1392285
- Smith, M. A. (2015). A reflection on first nations in their boreal homelands in Ontario: between a rock and a Caribou. *Conserv. Soc.* 13, 23–38. doi: 10.4103/0972-4923.161214
- Stålhammar, S., and Brink, E. (2021). 'Urban biocultural diversity' as a framework for human–nature interactions: reflections from a Brazilian favela. *Urban Ecosyst.* 24, 601–619. doi: 10.1007/s11252-020-01058-3
- Statistics Canada. (2017). *2016 census population. Statics Canada Catalogue no. 98-400-X2016154*.
- Townsend, J., and Roth, R. (2023). Indigenous and decolonial futures: indigenous protected and conserved areas as potential pathways of reconciliation. *Front. Hum. Dyn.* 5:970. doi: 10.3389/fhumd.2023.1286970
- Tran, T. C., Ban, N. C., and Bhattacharyya, J. (2020). A review of successes, challenges, and lessons from indigenous protected and conserved areas. *Biol. Conserv.* 241:108271. doi: 10.1016/j.biocon.2019.108271
- TRC (2015). *Honouring the truth, reconciling for the future. Summary of the final report of the truth and reconciliation commission of Canada*. Winnipeg: TRC.
- Ungar, M., Brown, M., Liebenberg, L., Cheung, M., and Levine, K. (2008). Distinguishing differences in pathways to resilience among Canadian youth. *Can. J. Commun. Ment. Health* 27, 1–13. doi: 10.7870/cjcmh-2008-0001
- United Nations Department of Economic and Social Affairs (2016). *World urbanization prospects: the 2016 revision – highlights*. New York: United Nations Department of Economic and Social Affairs.
- Wendt, D. C., and Gone, J. P. (2012). Urban-indigenous therapeutic landscapes: a case study of an urban American Indian health organization. *Health Place* 18, 1025–1033. doi: 10.1016/j.healthplace.2012.06.004
- Youdelis, M., Townsend, J., Bhattacharyya, J., Moola, F., and Fobister, J. B. (2021). Decolonial conservation: establishing indigenous protected areas for future generations in the face of extractive capitalism. *J. Polit. Ecol.* 28:4716. doi: 10.2458/jpe.4716
- Zurba, M., Beazley, K., English, E., and Buchmann-Duck, J. (2019). Indigenous protected and conserved areas (IPCA), Aichi target 11 and Canada's pathway to target 1: focusing conservation on reconciliation. *Land (Basel)* 8:10. doi: 10.3390/land8010010