



## Urban awareness and attitudes toward conservation: A first look at Canada's cities



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### A B S T R A C T

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Biodiversity loss is a global issue that has more recently been brought to the forefront of local governments with the aid of the 2008 Bonn Call-for-Action. However, species at risk conservation continues to receive little attention at the local level even though urbanization is primarily responsible for habitat destruction in developed countries. This paper illustrates that urban residents lack awareness of policy and endangered species based on 900 survey responses from Toronto and Vancouver residents. Additionally, this study finds that urbanities feel very little responsibility for conservation as compared to other actors like farmers and the federal government. To address the lack of awareness and bolster positive attitudes toward urban conservation the paper argues municipal governments should create eco-literacy programs and link biodiversity conservation into already existing climate action plans or green strategies.

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Urban areas are essential to the conservation of biodiversity and species at risk. This is mainly because of who lives in cities: the majority of people and an increasing number of endangered species. It is estimated that 51% percent of the world's population lives in cities and that number is expected to grow to almost 70% percent by mid-century (WHO, 2014). Urbanization of this magnitude will have significant impact on wildlife and habitat the world throughout. Specifically, cities threaten nature in numerous ways: species extirpations (species leave the city but do not go extinct in the wild), habitat fragmentation, land-use change, air, water and soil pollution, and competition from human commensals (Sanderson & Huron, 2011, 421). The diversity of native species also decreases in urban centers because only some species can thrive in the types of habitat that are either left in place or created in the context of urbanization (McKinney, 2002, 2006). For example, bobcats, coyotes, deer and sometimes bears have found themselves inside urban or suburban areas where they become vulnerable to vehicle accidents, poison, and animal control procedures, which can be lethal (Riley et al., 2003). Likewise, some species will actually thrive in suburban development and push out other native species. All of these city-based affects on ecosystems are why DeStegano and DeGraaf (2003) and Marzluff (2002) argue that urban

development is one of the largest threats to biodiversity in developed countries.

From a human perspective, biodiversity loss represents not just a loss in eco-system service potential but also a health risk. Several studies reflect on the psychological impacts of human-nature relationships and point to the disconnect between humans and nature that is evident in biodiversity loss (Lerman & Warren, 2011, 1327, see also Miller, 2005; Turner, Nakamura, & Dinetti, 2004). In Sheffield, UK researchers found a positive relationship between psychological well-being and species richness in urban spaces (Fuller, Irvine, Devine-Wright, Warren, & Gaston, 2007). Likewise, Dearborn and Kark (2010) point out that natural environments reduce stress and increase emotional well-being (see also Kuo, 2003). Plenty of research also documents the importance of urban green space and trees for human health (for example, Kuo, 2003; Lohr, Pearson-Mims, Tarnai, & Dillman, 2004; Summit & McPherson, 1998). Together these studies provide strong evidence to suggest that biodiversity loss represents not only a threat to ecosystems but also a threat to public health.

Given the problems associated with biodiversity loss there should be good reason for public concern and plenty of motivations for conservation and policy creation. Dearborn and Kark (2010) recently summarized seven motivations to conserve biodiversity in an urban area, ranging from eco-centric to anthropocentric reasons. Succinctly, these motivations include preserving important local biodiversity, creating corridors for natural populations, understanding response to environmental changes, connecting

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people with nature, providing ecosystem services, fulfilling ethical responsibilities and improving human well being (Dearborn & Kark, 2010, 433–434). Despite these reasons there is surprisingly little policy in place to conserve urban biodiversity in North America (Olive & Minichiello, 2013). While some US cities are opting to conserve open spaces through local referenda measures (Banzhaf, Oates & Sanchirico 2010; and see [landvote.org](http://landvote.org)) there is a lack of concerted and consistent attention to the issue of biodiversity conservation from policymakers and urban planners in the US and Canada.

There is also a lack of research that connects cities, municipal policy and endangered species. Olive and Minichiello (2013) examined the five largest cities in the US to determine what, if anything, the municipal governments were doing to protect species at risk. The main finding was that “neither the federal government nor the local government are adequately conserving urban endangered species” (63). No such study exists in Canada, but other research on Canadian provincial policy suggests results would be similar (see Olive, 2014). Banzhaf, Oates, and Sanchirico 2010 examine local ballot measures for conservation initiatives in US cities and find that cities with more endangered species and more surface water are the most likely to have a local referenda on conservation. Similarly, other studies have examined ballot measures for land conservation (Gerber & Phillips 2004; Kline, 2006; Kotchen & Powers, 2006) but do not directly link open spaces with endangered species protection.

While some studies examine public attitudes toward nature or biodiversity at the national or regional level (Bunnell, Campbell, & Squires, 2004; Federal, Provincial, and Territorial Governments of Canada, 2014; McFarlane, 2005; Meuser, Harshaw & Moers 2009) no large-scale city-focused data exists in Canada. This present study attempts to address this gap in the existing scholarship using over 900 mail survey respondents from the greater Vancouver and Toronto areas. Measuring public attitudes through opinion surveys is a widely used method of eliciting beliefs about important issues that might influence individual behavior and actions (Karanth, Kramer, Qian, & Christen, 2008). As other research has shown, attitudes are linked to policy acceptance and this is critical for urban planners and policymakers interested in fostering compliance and creating public awareness and support for policy (Bremner & Park, 2007; Karanth et al. 2008; Winter, Esler, & Kidd, 2005).

Urban biodiversity and species at risk are understudied fields in environmental policy, especially in Canada. This paper illustrates that Canadian urbanites lack basic awareness of endangered species and the related policy to conserve species. Moreover, this study is illustrative of the challenges that cities face in addressing biodiversity loss, such as public apathy and a desire to shift conservation responsibility onto farmers and the government (instead of the individual). Overall, the study suggests that cities, in Canada and globally, need to ensure adequate eco-literacy programs exist and that cities do a better job of linking biodiversity to already existing green programs or climate action plans.

### Urban biodiversity and conservation

There is a growing literature on the relationship between biodiversity and urbanization from a global perspective (see for Wilkinson, Parnell, & Sendstad, 2013 for a recent literature review). This is in part a response to the growing urgency of the problem. The International Council for Local Environmental Initiatives (ICLEI), created in 1990, has led the effort to join local governments in an international movement around sustainability. Their first and now annual conference, entitled World Congress of Local Governments for a Sustainable Future, brought together 200 local

governments from over 40 countries in 1990 to address broad environmental issues affecting cities. However, the first biodiversity-focused meeting of local governments occurred in Curitiba, Brazil in March 2007 and produced the “Curitiba Declaration on Cities and Biodiversity.” The following year, the Conference of the Parties to the United Nation’s Convention on Biological Diversity met in Germany where a parallel event called the Mayor’s Conference on Local Action for Biodiversity produced the “Bonn Call-for-Action.” The declaration begins from the premise that “worldwide no agency is in a better position to manage urban biodiversity and educate citizens about its importance than local government” (Mayor’s Conference 2008). Since this first official recognition of local government’s influence in the conservation on biological diversity, numerous other initiatives have developed worldwide, such as the technical series Cities and Biodiversity Outlook, ICLEI’s Cities Biodiversity Center and the National Biodiversity Center in Singapore, which produces the Singapore Index on Cities’ Biodiversity.

As a subset of biodiversity, urban species at risk have received very little attention in scholarly literature or North American public policy more broadly. This is partly because of legal limitations that provide little footing for environmentalists inside cities. In both Canada and the US there is virtually no federal land inside large urban settings – with the exception of a few federal buildings and the occasional national park (such as the case of Rouge Urban Park in Toronto). Since both Canada’s Species at Risk Act (SARA) and the US Endangered Species Act are federal laws they are most easily enforceable on federal lands (the US law does extend to private property, unlike SARA). This means that cities need to fill the policy void between the federal government can do and what needs to be done to protect biodiversity inside cities.

At a very broad level there are two initiatives that plenty of cities, and public policy literature, engages with: reconciliation ecology and smart growth. Both of these are popular in North America and many cities, such as C-40 cities, have “green strategies” or “green plans” at the local level. Even more popular are climate action plans created and implemented at the municipal level (Bassett & Shandas, 2010). Both Toronto and Vancouver have well developed initiatives aimed at mitigating and adapting to climate change. Unfortunately, at present there are virtually no programs that tie biodiversity and species at risk into local planning for climate change or even tie endangered species protection into more broadly based “green strategies” (Olive & Minichiello, 2013).

Instead, broad based policies and programs exist to create sustainable cities. Reconciliation ecology, as imagined by Rosenzweig (2003) is about “inventing, establishing and maintaining new habitats to conserve diversity in places where people live, work and play” (7). At the more basic level, it is about the coexistence and codependence of human civilization and wildlife. Similarly, “smart growth” or “sustainable growth” or “green design” call for “forms of urbanization that are more compact, transit and walking-friendly, conducive to high-quality urban life, and less environmentally damaging” (Filion, 2003, 49). Both schools of thought suggest that there is growing attention toward the importance of habitat and wildlife in city planning and urban development. Unfortunately, efforts are inconsistent and vary widely among cities, both in North American and across the globe. There are no recognized national standards in Canada or the US and the Bonn Call-to-Action created only global guidelines and goals, but no specific targets or regulations.

The result is a patchwork approach to conservation in North American cities. Across the US and in a few Canadian cities, urban gardens, forests, green ways, and protected areas, such as parks and watersheds, attempt to provide refuge for biodiversity and endangered species (Alvey, 2006; Goddard, Dougill, & Benton, 2010). In many respects this is indeed good news because inside large and

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