

Canadian Institute of Resources Law  
Institut canadien du droit des ressources

**Legislative Frameworks for Urban  
Biodiversity, Ecosystems and  
Wildlife in Alberta**

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## TABLE OF CONTENTS

<i>Acknowledgements and Dedication .....</i>	<i>vi</i>
<b>1. Introduction.....</b>	<b>1</b>
<b>2. Concepts.....</b>	<b>2</b>
2.1 Growth and Threat.....	2
2.2 Biodiversity, Ecosystem Services, Wildlife, Values .....	4
2.3 Ecological Networks and Connectivity .....	7
2.4 Stakeholders.....	9
<b>3. Alberta Experience and Parties Involved .....</b>	<b>9</b>
<b>4. Legislative and Policy Frameworks .....</b>	<b>19</b>
4.1 International.....	22
4.2 Federal .....	23
4.3 Provincial (Alberta) .....	23
4.4 Alberta Land-Use Planning .....	25
4.5 Municipal.....	29
<b>5. Critical Evaluation (Analysis).....</b>	<b>47</b>
<b>6. Closing.....</b>	<b>51</b>
<i>Appendices .....</i>	<i>52</i>
<i>Bibliography .....</i>	<i>57</i>

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### **Dedication**

This paper is dedicated to Ed the Duck (Calgary 1990), Bear 148, and the coyote trio swaggering past my car by Edworthy Park that time.

## Legislative Frameworks for Urban Biodiversity, Ecosystems and Wildlife in Alberta

As natural systems are dynamic, we recognize the indefinite time horizon for achieving biodiversity conservation in Calgary. A principled approach – rather than a goal-based approach – enables us to be dynamic in our actions as we move towards our vision.

*Our BiodiverCity: Calgary's 10 year Biodiversity Strategic Plan*<sup>1</sup>

A city, like a living thing, is a united and continuous whole.

*Plutarch, Greek historian and essayist, ~AD 46-127*<sup>2</sup>

### 1. INTRODUCTION

Alberta is a rapidly growing province whose cities are rapidly growing, often into wildlife habitat.<sup>3</sup> These cities are host to many species of wildlife and plants, already facing pressure in the urban setting.<sup>4</sup> At the same time, as the *Canadian Biodiversity Strategy* notes, “the global decline of biodiversity is now recognized as one of the most serious environmental issues facing humanity.”<sup>5</sup> Ecological management in urban areas, including environmental conservation and wildlife management, is a subject of community concern and engagement, with a variety of stakeholder values and interests.

Urban biodiversity falls under federal, provincial and municipal jurisdiction in law and policy. In Alberta, it is also subject to the terms of regional land use planning, which addresses, in part, biodiversity. In addition, recent changes to legislation governing municipalities affects municipal regional planning and may directly and indirectly affect governance of biodiversity.

This paper examines whether current legislative frameworks in Alberta do or can adequately address the effects of its rapid urbanization on wildlife and ecosystems. Part 2 introduces key concepts on the subject of urban biodiversity, including stakeholder interests. Part 3 looks at various experiences, challenges, and parties involved in the province. Part 4 reviews the governing multi-jurisdictional legislative and policy frameworks: international, federal, provincial, provincial land-use planning, and municipal, including recent changes to municipal legislation, and the governance in place in Alberta's metropolises, Calgary and Edmonton. Part 5 engages in critical examination of this framework, and closing comments follow.

The legislative framework is a patchwork of law and mostly policy, with international, federal, provincial, municipal, and non-governmental components, over inherently dynamic subject matter. Alberta's developing commitments to provincially based, land use planning along with municipal regional planning, along with biodiversity will impact urban biodiversity.

<sup>1</sup> *Our BiodiverCity*, *infra* note 12 at 66

<sup>2</sup> As quoted in Edmonton's Natural Connections Strategic Plan, *infra* note 330 at 6

<sup>3</sup> See for example, Alberta Fish & Wildlife, “Human-Wildlife Conflict”, online: < <http://aep.alberta.ca/fish-wildlife/human-wildlife-conflict/default.aspx> >

<sup>4</sup> See for example: City of Calgary, *Wild animals in Calgary's natural areas*, online: < <http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Wild-animals-in-Calgarys-natural-areas.aspx> > And City of Calgary *Concerns regarding wildlife*, online: < <http://www.calgary.ca/CSPS/ABS/Pages/Animal-Services/Complaints-wildlife.aspx> >

<sup>5</sup> Canada, *Canadian Biodiversity Strategy* (1995), online: < <http://www.biodivcanada.ca/default.asp?lang=En&n=560ED58E-1> > at Executive Summary

Elements of the overall framework are new and in development, and much is yet to be determined. There is little guidance for decision-makers to prioritize conflicting stakeholder interests including urban biodiversity. Evaluation and execution of the governing law and policy requires interdisciplinary collaboration including scientific expertise, urban planning and environmental design, and participation of multiple stakeholders. Broad, if not structurally coherent, support for measures of urban biodiversity conservation among decision-makers and the general public, is key to ongoing governance in this dynamic area.

## Scoping

This paper is written with the intention of providing education, and material that may support further study. It provides an overview of legislative and policy frameworks and analysis governing urban biodiversity in Alberta, and thereby provides a contribution in an area where very little commentary is available from a legal and regulatory perspective. Additionally, the paper reviews provincial governance, but acknowledges that observations are largely based from the Calgary area where it was written. The subject of urban wildlife in Alberta has numerous dimensions and is subject of numerous disciplines, many of which fall outside of the scope of the paper. In particular, this paper is not intended to contribute or explore scientific expertise.

## 2. CONCEPTS

The subject of urban biodiversity, ecology, ecosystems, and wildlife involves a great deal of scientific concepts and information. This paper will not provide or delve into scientific expertise. This section will outline a number of key concepts involved in the subject and required for critical examination of its regulation.

### 2.1 Growth and Threat

Alberta is experiencing rapid growth, and forecasts continued growth.<sup>6</sup> For example, Calgary grew 156% to 700km<sup>2</sup> between 1971 and 2011, with population increasing by 190%, losing “214 km<sup>2</sup> of arable land and 154 km<sup>2</sup> of natural and semi-natural land [to] settled area”.<sup>7</sup> In the same time period, Edmonton grew 220% to 1,094 km<sup>2</sup>, with population increasing by 118%, losing “402 km<sup>2</sup> of arable land and 169 km<sup>2</sup> of natural and semi-natural land [to] settled area.”<sup>8</sup> Meanwhile, biodiversity is under threat on all scales. Aronson et al write that “urbanization poses one of the greatest threats to global biodiversity.”<sup>9</sup> As the Alberta Emerald Foundation notes:

Habitat loss and fragmentation is the single largest threat to biodiversity conservation in an urban area. As large contiguous habitats are quickly converted into smaller remnants that are more isolated, the value of maintaining functioning ecological connections between patches increases significantly.<sup>10</sup>

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<sup>6</sup> Government of Alberta, *Land-use Framework* (December 2008), online: <

<https://landuse.alberta.ca/LandUse%20Documents/Land-use%20Framework%20-%202008-12.pdf> >

<sup>7</sup> Statistics Canada, *Human Activity and the Environment 2015: The changing landscape of Canadian metropolitan areas* (22 March 2016), Catalogue no. 16-201-X at 69

<sup>8</sup> Statistics Canada, *supra* note 7 at 77

<sup>9</sup> Myla FJ Aronson et al, “Biodiversity in the city: key challenges for urban green space management” (May 2017) 15:4 *Frontiers in Ecology and the Environment* 189, citing Seto et al, 2012

<sup>10</sup> Alberta Emerald Foundation, “Designing for Wildlife Passage in an Increasingly Fragmented World”, online: [https://emerald.foundation.ca/aef\\_awards/designing-for-wildlife-passage-in-an-increasingly-fragmented-world/](https://emerald.foundation.ca/aef_awards/designing-for-wildlife-passage-in-an-increasingly-fragmented-world/) >



Bulmer et al describe the “wicked problem” (a reference to the complexity and differing value systems involved) of urban wildlife in the Vancouver context as follows: “The increasing flux of people to Vancouver is putting immense pressure on wildlife with increasing densification and expansion outwards into natural spaces. [...] Overall, biodiversity is suffering wherever human development is.”<sup>11</sup>

Calgary’s *Our BiodiverCity* policy document describes “common challenges” to urban biodiversity as “habitat fragmentation, habitat loss, and invasive species,”<sup>12</sup> and notes awareness, legislative, budgetary, and physical pressures.

**Biodiversity is our life-support system and is essential infrastructure in Calgary. The Calgary we build and live in is a part of nature. It’s our choice how well we integrate the two.** Coupling and finding balance in the processes of urban development and conservation—and understanding how they best integrate—is a challenge we’re aiming to meet as the city of Calgary continues to evolve.<sup>13</sup> [emphasis theirs]

Urbanization and biodiversity seem inherently at odds, yet municipal planning combines goals of density and biodiversity conservation. Aronson et al write, “[u]ltimately, trade-offs will always exist between the amount and connectivity of habitat provided by UGS [urban green spaces] and the pressure of human population growth.”<sup>14</sup> However, the Calgary Metropolitan Plan [CMP] included in Strategy 3, Develop compact settlements, “[h]igher density infill development across the region makes good sense for the environment, the economy, our budgets and our quality of life.”<sup>15</sup> Calgary’s Municipal Development Plan [MDP]<sup>16</sup> contemplates that density supports biodiversity. Within the city-wide policy of “*Greening the City*”, the MDP, by “[c]reating a more compact urban form that uses less land and, therefore, reduces habitat loss and fragmentation and adverse impacts on wildlife, vegetation and water quality and quantity,”<sup>17</sup> reduces environmental impact.

At the same time, urbanization and habitat destruction does not preclude forms of biodiversity. As Greenaway notes, “[w]ildlife, native plant species, and water do not feel compelled to exist only in places we designate as ‘natural areas.’ Well beyond the ‘natural’ areas of a municipality, nature is present and active, creating conflicts as well as opportunities.”<sup>18</sup>

<sup>11</sup> Dominique Bulmer et al, “Urban Wildlife in Vancouver” (2015), online: UBC Geography Student Research on Environment and Sustainability Issues < <http://environment.geog.ubc.ca/urban-wildlife-in-vancouver/> >

<sup>12</sup> City of Calgary, *Our BiodiverCity: Calgary’s 10-year biodiversity strategic plan* (approved by Council in March 2015 along with the accompanying Biodiversity Policy), online: City of Calgary <

<http://www.calgary.ca/CSPS/Parks/Documents/Planning-and-Operations/BiodiverCity-strategic-plan.pdf> > at 18

<sup>13</sup> *Our BiodiverCity*, *supra* note 12 at 39

<sup>14</sup> Aronson, *supra* note 9 at 195

<sup>15</sup> Calgary Regional Partnership, *Calgary Metropolitan Plan* (May 2014), online: Town of High River < <https://www.highriver.ca/wp-content/uploads/2017/08/Calgary-Metropolitan-Plan-June-2014.pdf> >: [CMP] at 28.

This document was previously available online at the Calgary Regional Partnership website < <http://calgaryregion.ca/cmp/bin2/pdf/CMP.pdf> > which wound down February 28, 2018.

<sup>16</sup> City of Calgary, *Municipal Development Plan*, Adopted by Council September 2009, (Calgary: Office consolidation 2017 August), online: City of Calgary < [www.calgary.ca/MDP](http://www.calgary.ca/MDP) > [Calgary MDP]

<sup>17</sup> *Ibid* at 2-39

<sup>18</sup> Guy Greenaway, *Connecting the Dots: A Guide to Using Ecological Connectivity Modeling in Municipal Planning*, prepared for the Calgary Regional Partnership (Calgary: Miistakis Institute, November 2016), online: Miistakis Institute <

[http://rockies.ca/files/reports/Connecting%20the%20Dots\\_Planning%20Guide\\_Nov%202016.pdf](http://rockies.ca/files/reports/Connecting%20the%20Dots_Planning%20Guide_Nov%202016.pdf) > at 37

This does not equate however to natural or healthy ecosystems. Urbanization can even affect evolution of species. Cities have been found to drive evolution of resident animals and plants, including mutations, manipulations of natural selection to suit the urban environment, population differentiation through isolation, and new species.<sup>19</sup>

The impact of urbanization on biodiversity in rural areas falls outside of the scope of this paper but may be a subject for further study, for example, whether rural populations and/or rural “footprints” are decreasing, and whether increasing development to support a growing urban population is nonetheless causing fragmentation and habitat loss in rural areas.

## **2.2 Biodiversity, Ecosystem Services, Wildlife, Values**

The term “biodiversity” is used generally in this paper to encompass considerations of biodiversity, ecosystem services to the extent they impact ecosystems for the purposes of this paper, and wildlife: technical distinctions between these fall generally outside the scope of this paper. Further, the term “biodiversity” does not necessarily distinguish between wild or feral animals, or native, planted, or invasive plant species: technical and scientific differentiations between those organisms are outside of the scope of this paper.

### ***Ecosystem Services:***

The Land-use Framework [LUF]<sup>20</sup> defines Ecosystems as “[t]he interaction between organisms, including humans and their environment. Ecosystem health/integrity refers to the adequate structure and functioning of an ecosystem, as described by scientific information and societal priorities.”<sup>21</sup>

The South Saskatchewan Regional Plan [SSRP] provides the following examples of ecosystem services, “the benefits that come from healthy functioning ecosystems and the biodiversity found in them: food, fiber, fresh water (“provisioning” services); flood control, water and air purification (“regulating” services); spiritual, recreational, cultural benefits (“cultural” services); and nutrient cycling, soil formation (“supporting” services),”<sup>22</sup> and notes:

Biodiversity and ecosystem services are not the same thing but they are interdependent. Ecosystem services are the benefits humans, communities and society as a whole receive from healthy, functioning ecosystems and the biodiversity within them. Biodiversity underpins the supply of ecosystem services, so changes in biodiversity will affect the type and amount of those services available to humans.<sup>23</sup>

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<sup>19</sup> Emily Chung, “Cities are driving evolution – and may spawn new species, scientists say” (2 November 2017), CBC News, online: < <http://www.cbc.ca/news/technology/urban-evolution-cities-1.4383733> > citing Marc TJ Johnson, Jason Munshi-South, “Evolution of life in urban environments” (3 November 2017) 358:6363 *Science*, online: < <http://science.sciencemag.org/content/358/6363/eaam8327> > The new species referred to was a type of mosquito.

<sup>20</sup> LUF, *supra* note 6

<sup>21</sup> LUF, *supra* note 6 at 51 (Glossary)

<sup>22</sup> Alberta, *South Saskatchewan Regional Plan 2014-2024: An Alberta Land-use Framework Integrated Plan, amended February 2017* (Alberta: 2014) online: < <https://www.landuse.alberta.ca/LandUse%20Documents/South%20Saskatchewan%20Regional%20Plan%202014-2024%20-%20February%202017.pdf> > [SSRP] at 23

<sup>23</sup> *Ibid* at 23

*Biodiversity* is a concept that encompasses ecosystems and wildlife. The *Canadian Biodiversity Strategy* notes three forms of biodiversity: genetic, species, and ecosystem diversity.<sup>24</sup>

The LUF defines Biodiversity as “The assortment of life on earth – the variety of genetic material in all living things, the variety of species on earth and the different kinds of living communities and the environments in which they occur.”<sup>25</sup>

Calgary’s Biodiversity Policy and Strategic Plan<sup>26</sup> define biodiversity as follows:

the variability among living organisms—animals, plants, their habitats and their genes—from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part. This includes diversity within species, between species, and of ecosystems. Simply put, healthy nature is biodiverse. [...] We need biodiversity to be personally and socially healthy; it is a core component of strong, cohesive and inclusive communities.<sup>27</sup>

The United Nations definition of biodiversity in the 1992 *Convention on Biological Diversity* [CBD], used in the *Canadian Biodiversity Strategy* and adopted by Edmonton<sup>28</sup> is “... diversity within species, between species and of ecosystems.”<sup>29</sup> David Robinson writes, “To put it simply, an area with an abundance of species and individuals is said to be more biodiverse than an area with few species and individuals. Biodiversity is crucial for healthy ecosystems. Interactions among and between species and their environments facilitate ecological functions such as nutrient recycling, water and air filtration, and pollination.”<sup>30</sup>

The “wicked problem” of urban wildlife is described by Bulmer et al as having “two dimensions [...], namely human-wildlife interactions and biodiversity ecosystem services.”<sup>31</sup> but, even considering the issue in terms primarily of wildlife, they note, “[b]iodiversity conservation is arguably a more pertinent issue than human wildlife interaction, for it affects more than just a select group of affected individuals: ecosystem health and thriving populations affect all.”<sup>32</sup>

Likewise, the CBD “advocates using an ‘ecosystem approach’ [over an individual or population approach or community approach]<sup>33</sup> in studying biodiversity”.

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<sup>24</sup> *Canadian Biodiversity Strategy*, *supra* note 5 at Executive Summary

<sup>25</sup> LUF, *supra* note 6 at 51 (Glossary)

<sup>26</sup> City of Calgary, *Biodiversity Policy*, CSPS037, Effective 2015 March 30 (Council Policy) [Calgary Biodiversity Policy], referencing the international Union for the Conservation of Nature; and *Our BiodiverCity*, *supra* note 12

<sup>27</sup> *Our BiodiverCity*, *supra* note 12 at 11-12

<sup>28</sup> Edmonton, *City of Edmonton Biodiversity Report* (Edmonton: 2008), online: < [https://www.edmonton.ca/city\\_government/documents/PDF/BIO\\_DIVERSITY\\_REPORT\\_-\\_high\\_res\\_August2008.pdf](https://www.edmonton.ca/city_government/documents/PDF/BIO_DIVERSITY_REPORT_-_high_res_August2008.pdf) > at 8

<sup>29</sup> As cited by David Robinson, *infra* note 30 at 17

<sup>30</sup> David Robinson, “An Impossible Dream?: Biodiversity in Alberta’s Largest Urban Centres” *Wild Lands Advocate* 23;1 (February 2015) 17, online: < <https://albertawilderness.ca/> > at 17

<sup>31</sup> Bulmer et al, *supra* note 11

<sup>32</sup> Bulmer et al, *supra* note 11

<sup>33</sup> Lynette Hiebert, *A Spatial Approach to Biodiversity Planning in the Calgary Region* (MEDes Thesis, University of Calgary Faculty of Graduate Studies Graduate Program in Environmental Design, 2017) [unpublished], online: < [http://theses.ucalgary.ca/jspui/bitstream/11023/3594/1/ucalgary\\_2017\\_hiebert\\_lynette.pdf](http://theses.ucalgary.ca/jspui/bitstream/11023/3594/1/ucalgary_2017_hiebert_lynette.pdf) > at 15

## ***Anthropocentrism***

This paper embraces an anthropocentric perspective. While some academics question anthropocentrism on the subject of wildlife and animals,<sup>34</sup> our institutional frameworks are built generally on an anthropocentric worldview, and indeed, as Kevin van Tighem writes, “anthropocentrism [...] might in fact be the solution rather than the problem. What we need, however, is a better anthropocentrism based on the simple truth that [...] human beings [cannot] ever be truly human if we fail to sustain the living ecosystems that are not merely our home places, but our very selves.”<sup>35</sup> Similarly, Bulmer et al note, “[h]uman health is intimately linked with biodiversity and ecosystem health, therefore we have quite a vested interest in maintaining wildlife populations of all species, and protecting enough habitat to sustain them all.”<sup>36</sup>

## ***Values of Biodiversity***

Biodiversity benefits biodiversity. For example, Alberta Fish and Wildlife write that urban wildlife has benefits: feeding on pests including mice and insects, enhancing biodiversity, and “gives city dwellers viewing opportunities that enrich their appreciation for Alberta wildlife.”<sup>37</sup>

It also provides multifaceted value to humans. The Canadian Wildlife Federation notes:

Canadians are starting to learn that wildlife is not merely a source of personal pleasure, as deep and meaningful as that pleasure might be. We are beginning to understand that the health of our wildlife is an excellent indication of the health of the environment on which we depend, and that healthy wildlife population and habitat are important to our social and economic well-being.<sup>38</sup>

Proximity to nature and natural landscapes has been shown to support mental health more broadly.<sup>39</sup> Statistics Canada notes that as well as natural and semi-natural land generating ecosystem goods and services and “provid[ing] a diverse range of habitats supporting biodiversity”<sup>40</sup>, “access to nature plays a role in overall well-being” referencing social interaction and sense of community, physical activity, and health benefits including mental health benefits and restorative effects’, as well as positive effects on children’s cognitive functioning and resilience.”<sup>41</sup>

The City of Calgary describes the practical importance of biodiversity as follows:

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<sup>34</sup> See, for example, Maneesha Deckha & Erin Pritchard, “Recasting our “wild” neighbours: contesting legal otherness in urban human-animal conflicts” in UBC L Rev 49 (2016). See also Mohammad Sadeghi Esfahlani, “Critical Animal Studies & the Humanities: A Critical Introduction” in Ellis, ed, *Calgary – City of Animals* (Calgary: University of Calgary Press in cooperation with The Calgary Institute for the Humanities, 2016) 42.

<sup>35</sup> Kevin Van Tighem, *Our Place* (Canada: Rocky Mountain Books Ltd. 2017) at 47

<sup>36</sup> Bulmer et al, *supra* note 11, citing Olive, A. (2014). Urban awareness and attitudes toward conservation: A first look at Canada’s cities. *Applied Geography*, 54, 160-168. doi:10.1016/j.apgeog.2014.08.002

<sup>37</sup> Alberta Fish and Wildlife, *supra* note 3

<sup>38</sup> Hinterland Who’s Who, *Benefits of Wildlife*, online: Canadian Wildlife Federation, Hinterland Who’s Who, < <http://www.hww.ca/en/issues-and-topics/benefits-of-wildlife.html> >

<sup>39</sup> See, for example, Rebecca A Clay, “Green is good for you” in *Monitor on Psychology* 32:4 (April 2001), online: < <http://www.apa.org/monitor/apr01/greengood.aspx> >

<sup>40</sup> Statistics Canada, *supra* note 7 at 36

<sup>41</sup> Statistics Canada, *supra* note 7 at 37

Nature is our life-support system. It is where we engage in activities for fun; it's somewhere we can escape and recharge. Nature is our economic base. It is a diversity of landscapes. These lands provide for parks, urban development and resources for numerous goods and services. In the form of public parks, nature provides vital spaces for us to participate in civic life and be engaged citizens. It provides us with rich soil, clean air and pure water. In the form of densely vegetated riparian areas along rivers, streams and wetlands, it provides habitat for wildlife and buffers the effects of flood waters on our city.<sup>42</sup>

Calgary's strategic plan on biodiversity expands on its benefits:

Calgary has always been defined in part by its natural environment. [...] Today, Calgarians and visitors cherish a contemporary portrait of a city of trees, rivers, wildlife, prairie grasslands and parks. Calgary has a history of protecting nature. [...] Developing a city does not have to happen at odds with ecological conservation. [...] As a city we need to better understand the complex interactions between growth, our day-to-day life and conserving nature. [...]. We know that nature's diversity awards us with tangible personal, social, cultural, environmental and economic benefits.<sup>43</sup>

### 2.3 Ecological Networks and Connectivity

Connectivity is generally viewed as key to protection of biodiversity, as part of a conceived system of patches, corridors, and matrices. As Hiebert writes, "[h]ow connected or spatially continuous a landscape is reflects its functional capability which in turn reflects its capacity to maintain biodiversity. The literature clearly supports both landscape ecology [which links spatial pattern with ecological processes] and landscape connectivity approaches to urban and regional biodiversity, and landscape planning and design."<sup>44</sup>

A helpful primer on connectivity and connectivity-related issues is Guy Greenaway's *Guide to Using Ecological Connectivity Modeling in Municipal Planning*, prepared for the Miistakis Institute, as a "guide for those involved in municipal planning who are not biologists, GIS technicians, data modellers, but 'face the challenge of addressing ecological connectivity.'"<sup>45</sup> This document provides information as well strategic guidance.

Greenaway defines "ecological connectivity" (also called "wildlife corridors")<sup>46</sup> as:

In the simplest terms, ecological connectivity is the ability for animals, plants and water to get from A to B. Their health, and that of the systems they inhabit, depends on it. [...] Connectivity can be a make or break part of a species' survival or the ability of an ecological function (like water cycling) to actually function. The challenge is that the needs of species can vary dramatically, and there is rarely a clear threshold for 'disconnectedness'.<sup>47</sup>

<sup>42</sup> *Our BiodiverCity*, *supra* note 12 at 7

<sup>43</sup> *Our BiodiverCity*, *supra* note 12 at 8

<sup>44</sup> Hiebert, *supra* note 33 at 30

<sup>45</sup> Greenaway, *supra* note 18 at 5

<sup>46</sup> *Ibid* at 29

<sup>47</sup> *Ibid* at 7-8

Greenaway's Guide discusses connectivity, patches, habitat fragmentation, "ripple effects" (e.g. for humans, other ecosystem services, landscape resilience to climate change, human-wildlife conflict); and "species-specific (functional) vs non-species-specific (structural) connectivity,"<sup>48</sup> and conservation vs mitigation strategies.<sup>49</sup> Greenaway considers potential applications for connectivity planning:<sup>50</sup>

- Area structure plans
- Parks & open space acquisition
- Transportation network planning and development
- Urban conservation planning and management
- Wetland and hydrological connectivity protection
- Policies, practices, guidelines, bylaws
- Regional Decision Making [including] Intermunicipal Development Plans, Regional plans under ALSA, watershed management, connection to provincial parks and protected areas, "partnerships between private land conservation organizations (land trusts) and municipalities", and wildlife movement with respect to roadways and rights of way.<sup>51</sup>

Calgary's MDP describes Ecological Networks in some detail, with the objective of "[m]aintain[ing] biodiversity and landscape diversity, integrating and connecting ecological networks throughout the city"<sup>52</sup>, expanding as follows:

An ecological network is a network of natural areas and open space providing the conditions necessary for ecosystems and species populations to survive in a human-dominated landscape. This network is one of the defining features that establish Calgary's character, sense of place and quality of life. The components of the network include the river valley system, natural environment parks, regional and neighbourhood parks, pathways, linear parks, school sites, community gardens and urban plazas. These provide a haven for many plant and animal species.

The real power of natural areas and open spaces – and their ability to significantly improve the quality of life in communities – lies in viewing and applying them as a system, rather than in individual components, that responds to the social needs (often recreational) of the city's population. Open spaces can be viewed as a structural pattern of landscape elements. These elements, patches and corridors, join together to form a matrix. The overall pattern determines flows and movements of species in and through the landscape.<sup>53</sup>

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<sup>48</sup> *Ibid* at 8-9

<sup>49</sup> *Ibid* at 15

<sup>50</sup> *Ibid* at 24ff

<sup>51</sup> *Ibid* at 30-31

<sup>52</sup> Calgary MDP, *supra* note 16 at 2-46

<sup>53</sup> *Ibid* at 2-46

## 2.4 Stakeholders

In urban areas, stakeholders hold diverse interests, many with significant financial implications. In a limited space, in addition to public values of biodiversity, stakeholders may value development, density, transportation, and a variety of uses. Private land owners will have their own values and interests for the use of their properties.

More broadly, stakeholders will include all parties with interests in the urban area, including residential, recreational, business, industrial, transportation, and infrastructure use. Stakeholders may include parties with conflicting interests and perspectives, conservation groups, taxpayers, and property owners.<sup>54</sup> Bulmer et al also consider the role of “social constraints” that affect stakeholders’ opinions, including education and public information, “fear mongering”, health and safety, and personal values.<sup>55</sup>

Calgary’s *Our BiodiverCity* describes implementation of related policy as including “[c]ity business units and departments, [...]specialists, researchers, educators and practitioners, [...] collaboration across industry sectors and across different scales, from regional landscapes to backyards [and] acknowledge the work done by citizens to enhance or conserve biodiversity in their gardens and neighbourhood parks, or to simply lessen damage to biodiversity through environmental stewardship.”<sup>56</sup>

*Our BiodiverCity* lists the following stakeholders external to the City of Calgary in relation to the creation of the strategic plan: Alberta Wilderness Association [AWA], Bow River Basin Council, Canadian Parks and Wilderness Society [CPAWS], Community Garden Resource Network, a project of the Calgary Horticultural Society, Edworthy Park Heritage Society, Federation of Calgary Communities, Friends of Nose Hill, ICLEI, Natural Calgary, and the University of Calgary.<sup>57</sup>

The CMP included collaboration within its Strategies, listing “research partnerships with leading organizations and institutions including the Bow River Basin Council, the Miistakis Institute of the Rockies, The University of Calgary’s Faculty of Environmental Design and Alberta Environment and Water.”<sup>58</sup>

## 3. ALBERTA EXPERIENCE AND PARTIES INVOLVED

By far the most populated cities in Alberta are Calgary and Edmonton.<sup>59</sup> Their respective natural areas and ecological network maps are attached as Appendix A. In addition to these metropolises, urban wildlife and biodiversity occurs in centres throughout the province. This section describes experiences in different parts of the province and some of the organizations involved, including not-for-profit organizations. It is illustrative and not comprehensive.

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<sup>54</sup> Bulmer et al, *supra* note 11

<sup>55</sup> *Ibid*

<sup>56</sup> *Our BiodiverCity*, *supra* note 12 at 31

<sup>57</sup> *Ibid* at 45

<sup>58</sup> CMP, *supra* note 15 at 14, Strategy 1.d

<sup>59</sup> Calgary’s 2016 population was 1,235,171 and Edmonton’s was 899,447 (not taking into account satellite centres), and the next largest cities were Red Deer and Lethbridge, both just under 100,000. See Alberta, *2016 Municipal Affairs Population List*, online: Municipal Affairs <  
[http://www.municipalaffairs.gov.ab.ca/documents/2016\\_Municipal\\_Affairs\\_Population\\_List.pdf](http://www.municipalaffairs.gov.ab.ca/documents/2016_Municipal_Affairs_Population_List.pdf)>.

## Generally

Alberta covers a large and diverse geographic area. It contains “six natural regions, from grasslands in the south to boreal forest in the north” and includes “a rich diversity of landscapes, supporting a wide range of plant, animal and microbial life.”<sup>60</sup>

Alberta Fish and Wildlife’s website provides information regarding different kinds of animals: bats, beavers, bobcats, cougars, coyotes, crows and magpies, deer, foxes, geese, hawks, owls and raptors, moose, porcupines, rabbits and hares, raccoons, skunks, snakes, squirrels, woodchucks, and orphaned or injured wildlife.<sup>61</sup> They continue, “Many animals, such as coyotes, foxes and magpies, have readily adapted to life in the city. Permanently removing these species from urban areas is not possible. Removing these animals only leaves vacancies which other animals can fill.”<sup>62</sup> Alberta Fish and Wildlife give the following guidance to reduce urban human-wildlife conflict:

- Never feed wildlife
- Never approach wildlife
- Keep your dog on a leash
- Keep your cats indoors
- Keep your garbage in a secure container with a lid
- Remove food and shelter that attracts wildlife to your property
- Drive carefully
- Teach your children about wildlife in the city<sup>63</sup>

Coyotes are often an example of human-wildlife conflict and present inherent dangers. Dr Shelley M Alexander, founder of the Canid Conservation Science Lab, writes that considering urban wildlife “challenge[s us] challenged to accept animals like coyote: animals that are critical to biodiversity but confront our world order by sometimes living in our backyards, sometimes consuming our pets.”<sup>64</sup> Alexander notes people’s “polarized beliefs about species about species” and history of relationships with coyotes, who “hold the unenviable title of North America’s most persecuted carnivore”, and have lived throughout North America for over a million years, but have been persecuted and slaughtered by humans since the mid-1800s.<sup>65</sup> Alexander describes the adaptive capacity of coyotes and their habituation into urban environments, such as Calgary, in “an area that has and always will be home to coyote.”<sup>66</sup> She writes that “coyote’s critical role in maintaining urban ecosystem function has been established by several scientific studies”<sup>67</sup> and “our relationship to coyote reflects a dissonance in our choices around greener cities.

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<sup>60</sup> Alberta Environment and Parks, “Biodiversity”, online: <<http://aep.alberta.ca/land/land-industrial/education/biological-land-quality/biodiversity.aspx>> (accessed in 2017, this webpage is no longer available)

<sup>61</sup> Alberta Fish and Wildlife, *supra* note 3

<sup>62</sup> *Ibid*

<sup>63</sup> *Ibid*

<sup>64</sup> Shelley M Alexander, “Silence of the Song Dogs” in Ellis, ed, *Calgary – City of Animals* (Calgary: University of Calgary Press in cooperation with The Calgary Institute for the Humanities, 2016) 22 at 23

<sup>65</sup> *Ibid* at 24

<sup>66</sup> *Ibid* at 25

<sup>67</sup> *Ibid* at 27



Some people describe a desire for green spaces and a love of the attending biodiversity, such as the riverside parks and protected ravines in Calgary. Yet those same people sometimes do not want coyotes in those spaces.”<sup>68</sup> Alexander suggests the city should “allow humans and coyotes to co-flourish.”<sup>69</sup> Alexander concludes that “[t]o truly be a City of Animals [i.e. biodiverse] will require accepting unpleasant ecological realities, such as:

- when your domestic animal leaves the safety of your home it becomes part of the food chain
- when you enter the private spaces of a coyote you might be bitten
- aggression is natural, evolved, and necessary for coyotes. We can mitigate being the target of aggression by controlling our attractants and being vigilant about pets
- coyotes (like all non-human animals) are just living; humans construct conflict”<sup>70</sup>

Priya Shelly’s American documentary “Living with Coyote”<sup>71</sup> also explored the complexity of coyotes and humans. The film observed that coyotes territories expanded along with people’s, and asserted that the two polarized urban “camps” on the subject were both wrong: it is neither appropriate to destroy them all, or to base a response on the idea of humans encroaching on beloved coyote territory. Shelly emphasized the role of public education and cooperation in coyote management.

The City of Calgary’s approach to coyotes advises the public to share space with caution.<sup>72</sup> Calgary notes that the provincial government is responsible for coyote management.

Bird watching is another urban wildlife experience in Calgary and beyond. Angela Waldie describes bird watching and walking activities in Calgary, the learning experiences involved in terms of species located, change over time and lessons about fragmentation and habitat loss, as well as the values of cultivating awareness and placemaking

Further, Luchsinger and Griffin of the Ann & Sandy Cross Conservation Area Nocturnal Preserve note the impact of light pollution on disrupting wildlife.<sup>73</sup>

Staff at the Calgary Wildlife Rehabilitation Society note the city’s “rich legacy of natural abundance and biodiversity”<sup>74</sup> which enriches citizens’ lives. Their non-profit charitable organization has, since 1993 been “committed to mitigating the negative impact of humans on wildlife [by a unique mission of] rehabilitat[ing] injured and orphaned wildlife.”<sup>75</sup> habitats and of the conflict between human activity and wild behaviours.”<sup>76</sup>

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<sup>68</sup> *Ibid* at 25-6

<sup>69</sup> *Ibid* at 27

<sup>70</sup> *Ibid* at 30

<sup>71</sup> Priya Shelly, Director, *Living With Coyote* (documentary, 2015), screened at Esker Foundation 16 November 2017, online: < <http://www.priyashelly.com/livingwithcoyote/> >

<sup>72</sup> City of Calgary, “Concerns regarding coyotes”, online: Calgary Animal services, online: < <http://www.calgary.ca/CSPS/ABS/Pages/Animal-Services/Complaints-coyotes.aspx> >

<sup>73</sup> Maureen Luchsinger and Laura Griffin, “Light Pollution in an Animal City” in Ellis, ed, *Calgary – City of Animals* (Calgary: University of Calgary Press in cooperation with The Calgary Institute for the Humanities, 2016) 56

<sup>74</sup> Jenna McFarland and Andrea Hunt, “Wild Animals in the City” in Ellis, ed, *Calgary – City of Animals* (Calgary: University of Calgary Press in cooperation with The Calgary Institute for the Humanities, 2016) 56 at 59

<sup>75</sup> *Ibid* at 59

<sup>76</sup> *Ibid* at 59

As Calgary expands and encroaches upon spaces that were previously wild, more and more wildlife find refuge and habitat within the city limits.”<sup>77</sup> McFarland and Hunt advocate education and patience.<sup>78</sup>

For us to co-flourish with wildlife, there first needs to be recognition of the inherent value each individual life has within the ecosystem and then we need to reframe our experiences with, and expectations of, wildlife. Even so-called nuisance species such as Richardson ground squirrels and striped skunks perform highly valuable functions within the ecosystem and need to be seen as important links within a great chain. It is for this reason that the ethics of the destruction or displacement of these animals should embrace a larger context including the niche that animal fills within the ecosystem and the consequences of its removal. Oftentimes the culling of wildlife that are considered pests has unintended negative consequences for wildlife and humans alike. Urban and rural wildlife management strategies are generally more successful when they include an analysis of the benefits of wildlife and their natural behaviours in the entire system.<sup>79</sup>

As stewards of this land, it is imperative that citizens develop an appreciation for wildlife and find ways to harmoniously co-exist with the creatures that share our city. It is becoming increasingly clear that humans need wild spaces in order to maintain mental, emotional, and even physical health. Allowing for spaces that create a sense of connection to nature has to be part of a larger, more synergistic approach to managing human stress and health. Healthy ecosystems benefit every life within them, including humans. The wildlife that inhabit our city contribute to its vibrancy, its beauty, and its diverse wealth. They are worth protecting.<sup>80</sup>

In addition to the Calgary Wildlife Rehabilitation Society (CWRS)<sup>81</sup> in Calgary, the Alberta Institute for Wildlife Conservation (AIWC) operates in Didsbury as “an accredited vet clinic [...] specifically dedicated to admitting injured and orphaned wildlife [...] serv[ing] the Calgary region and southern Alberta.”<sup>82</sup> Likewise, WILDNorth, Northern Alberta Wildlife Rescue and Rehabilitation is a “charitable organization that provides compassionate care for injured, contaminated and orphaned wildlife and educates the public on the importance of wildlife in our community”,<sup>83</sup> serving Edmonton and surrounding communities.

## Calgary

Calgary’s parks system “supports diverse habitats, creates social and recreation opportunities for Calgarians, and provides ecosystem benefits such as clean water, and erosion and flood control.”<sup>84</sup>

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<sup>77</sup> *Ibid* at 59

<sup>78</sup> *Ibid* at 60

<sup>79</sup> *Ibid* at 60

<sup>80</sup> *Ibid* at 60

<sup>81</sup> <http://calgarywildlife.org>

<sup>82</sup> <http://www.aiwc.ca/>

<sup>83</sup> <http://wildnorth.ca/>

<sup>84</sup> Miistakis Institute “Urban Wildlife Abound in YYC – City of Calgary Parks Camera Monitoring Project”, *Miistakis Miinute* (Winter 2017), online: Miistakis Institute < [http://www.rockies.ca/newsletter/winter2017\\_camera.php](http://www.rockies.ca/newsletter/winter2017_camera.php) > [Miistakis Minute]

Calgary's "best-known naturalist", Brian Keating says, "we are extremely lucky to have clear, clean mountain rivers flowing through our city, essentially placing wildlife corridors right into the heart."<sup>85</sup>

The City of Calgary describes human-wildlife coexistence and conflict, noting the provision of off-leash parks to minimize "conflict between pets and wildlife,"<sup>86</sup> reports investigations of sightings, public education, removing food and garbage, hazing coyotes, and possible park and pathway closures.<sup>87</sup> Calgary also lists pest management as including management of weeds (dandelions, lawn mushrooms, giant hogweed, Dame's rocket, salt cedar, toadflax, creeping bellflower, and invasive plants), insects (wasps, ants, mosquitoes, the red lily beetle), animals (including squirrels, pigeons, beavers, geese, mice, gophers, and voles), and tree diseases.<sup>88</sup> Calgary contacts provincial and federal wildlife authorities "prior to any pest control actions dealing with wildlife that fall under the Alberta Wildlife Act or Federal Migratory Birds Act"<sup>89</sup> including Canada Geese.

Calgary Parks with the support of the Miistakis Institute, has begun a Wildlife Camera Monitoring Project "to gather the data necessary to monitor our understanding and management of urban wildlife"<sup>90</sup> by providing baseline data. This involves over 60 motion-activated cameras throughout the city's natural areas, aiming to capture "medium and large-sized mammals, such as cougar, bobcats, coyote, fox, bear, deer, moose and elk, which depend on intact wildlife corridors."<sup>91</sup> It is hosted on the Zooniverse portal, and supported by citizen participation.<sup>92</sup> Remote cameras have been placed in 13 city parks as well as Fish Creek Provincial Park, including Paskapoo Slopes, Tom Campbell's Hill, Ralph Klein Park, Inglewood Bird Sanctuary, Edworthy park/Lawrey Gardens, Bowmont park, Griffith Woods, Nosehill Park, Edgemont Ravines, Confluence Park, North/South Glenmore Park/Weaselhead, Haskayne, and Hidden Valley.<sup>93</sup>

## Edmonton

Edmonton's wildlife and biodiversity centre around the river valley. The Edmonton river valley is 7400 hectares, "the largest stretch of urban parkland in North America," and contains 22 major parks and "over 150 kilometres of interconnecting trails."<sup>94</sup>

<sup>85</sup> Chris Fisher, "Calgary critters: check out who calls your neighbourhood home" (Analysis) (15 April 2017) CBC News, online: < <http://www.cbc.ca/news/canada/calgary/calgary-wildlife-1.4070461> >

<sup>86</sup> City of Calgary, *Calgary's Wild Neighbours: Sharing Our Urban Ecosystem with Wildlife*, online: Calgary < <https://maps.calgary.ca/Wildlife/> >

<sup>87</sup> *Ibid*

<sup>88</sup> Calgary Parks, "Common pests in Calgary", online: < <http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Pest-Management/Common-pests-in-Calgary.aspx> >

<sup>89</sup> Calgary Parks, "Geese", online: < <http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Pest-Management/Geese.aspx> >

<sup>90</sup> Miistakis Minute, *supra* note 85

<sup>91</sup> *Ibid*

<sup>92</sup> Zooniverse, "Capture Calgary", online: < <https://www.zooniverse.org/projects/calgary-captured/calgary-captured> >; see also Miistakis Minute, *supra* note 85

<sup>93</sup> City of Calgary, *Calgary's Wild Neighbours: Sharing Our Urban Ecosystem with Wildlife*, online: Calgary < <https://maps.calgary.ca/Wildlife/> >

<sup>94</sup> Nikita Rubuliak, "Our Ribbon of Blue and Green" (6 February 2017), online: CPAWS-Northern Alberta < <http://cpawsnab.org/blog/our-ribbon-of-blue-and-green> >, citing River Valley Parks, 2016

It provides opportunities for recreation and sources Edmonton's drinking water, holds a "large amount of ecological value" including species of birds, mammals, plants, and insects, and serves as "an extremely important wildlife/ecological corridor."<sup>95</sup> Rubiliak notes the following organizations work relating to the river valley: The River Valley Alliance, Alberta Trail Net, North Saskatchewan River Valley Conservation Society, North Saskatchewan Watershed Alliance, and The City of Edmonton.<sup>96</sup>

## **Bow Valley**

The Bow Valley corridor in which Canmore and Banff are located, is an important wildlife corridor, facing increasing pressure as those population centres grow and develop. It presents unique jurisdictional challenges as Banff National Park falls under federal jurisdiction and Canmore falls under provincial jurisdiction. In addition, its geography and proximity to the National Park make it abundant with wildlife.

A recent case<sup>97</sup> before the Municipal Government Board addressed human-wildlife conflict relating to the effectiveness of wildlife highway crossings as one of multiple factors<sup>98</sup> in considering whether the Municipal District of Bighorn No 8's proposed Area Structure Plan for Dead Man's Flats caused detriment to the Town of Canmore. The Municipal Government Board considered, among other factors, whether the ASP was compliant with the pertinent MDP and the SSRP, and found no detriment.

## **Bear 148**

An inadvertent celebrity ambassador for human-wildlife coexistence in 2017 was Bear 148, a six-year-old female grizzly resident in the Bow Valley<sup>99</sup> who was ultimately killed following relocation after human conflict. Bear 148 "represent[ed] the fine balance between keeping grizzly bears alive on this landscape amid millions of tourists and residents alike in a valley that is quickly teetering towards the cliff's edge and the point of no return in no terms of development, visitation and human usage."<sup>100</sup> Bear 148 had numerous human interactions in 2017, in both Canmore and Banff, including dogsledders, hikers, dogs, and a high school rugby game inside the Banff townsite.<sup>101</sup> In June, she was relocated within Banff, after "[t]he province stated that she would be killed if she had one more aggressive encounter outside of the National Park,"<sup>102</sup> amid public concern. Following her return to Canmore, and "another string of encounters with people [...] she was relocated to Kakwa Provincial Park, west of Grande Cache, along the BC/Alberta border,"<sup>103</sup> where she was killed legally by a hunter in September.

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<sup>95</sup> *Ibid*

<sup>96</sup> *Ibid*

<sup>97</sup> *Town of Canmore v Municipal District of Bighorn No 8* (re Bylaw 12/15, Dead Man's Flats Area Structure Plan 2017 ABMGB 10

<sup>98</sup> including flood mitigation

<sup>99</sup> Banff is under federal jurisdiction which wildlife/biodiversity management is outside of the scope of this paper, but much of Bear 148's story including her ultimate relocation takes place on provincial lands so it is included.

<sup>100</sup> John Marriott, as quoted in Skrajny, *infra* note 102 at 12

<sup>101</sup> Joanna Skrajny, "Bear 148's Last Summer" (September 2017) 25:3 Wild Lands Advocate 12, online: Alberta Wilderness Association < [https://albertawilderness.ca/wordpress/wp-content/uploads/2017/11/20170900\\_ar\\_wla\\_bear\\_148\\_summer\\_jskrajny.pdf](https://albertawilderness.ca/wordpress/wp-content/uploads/2017/11/20170900_ar_wla_bear_148_summer_jskrajny.pdf) > at 12

<sup>102</sup> *Ibid* at 12

<sup>103</sup> *Ibid* at 12

Johanna Skrajny of the AWA noted that despite the bear's comfort among humans, she never "develop[ed] a taste for human sourced food, [having been raised by her mother] who had managed to live successfully in Banff for 24 years."<sup>104</sup> But her relocation prevented her from herself reproducing and teaching cubs to coexist with humans in the area. Skrajny noted that "people played an important, unhelpful, role in her aggressive encounters. For example, Bear 148 clearly exhibited defensive reactions when it came to dogs."<sup>105</sup> Skrajny reviewed the different bear management approaches taken by provincial and federal (Parks) authorities, including relocation and euthanasia. Skrajny concluded:

it's clear that the trends of increasing development and commercialization in our National Parks and gateway communities such as Canmore are spelling disaster for wildlife. If we don't provide them with secure habitat and spaces to go, more human-bear conflicts seem inevitable.<sup>106</sup>

## Wolves

The Bow Valley wolf pack provides an interesting and current story regarding human-wildlife conflict.<sup>107</sup> It is a sad story with a somewhat optimistic ending. The existing Bow Valley wolf pack consisted of "at least nine wolves in the spring of 2016. But the wolf pack started getting in trouble[...] when the animals became used to human food and lingered near campgrounds."<sup>108</sup> Skrajny wrote that "the recent decimation of the wolf pack in Banff was largely due to people refusing to clean up their campsites or at times even feeding the pack."<sup>109</sup> The pack was decimated after "six members died [in 2016]: four pups were hit by trains and two females, including the

alpha, had to be destroyed after becoming aggressive looking for food in campgrounds."<sup>110</sup> Two wolves were left, the alpha male and one female offspring. The male joined the Spray pack, and the female remained in the area.<sup>111</sup> In November 2017, Parks Canada observed new wolves in the area, and speculated whether a "new wolf pack may be taking up territory."<sup>112</sup> A Banff National Park ecologist previously noted the existence of prey and predicted "I'm certain at some point in the next year or two we will have a full-fledged Bow Valley pack again [but added] [w]olves from outside the valley will need to learn how to navigate the busy landscape, using the wildlife under- and overpasses."<sup>113</sup>

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<sup>104</sup> *Ibid* at 13

<sup>105</sup> *Ibid* at 13

<sup>106</sup> *Ibid* at 13

<sup>107</sup> Although it largely takes place in Banff National Park, under federal jurisdiction, it relates to the Bow Valley's provincial lands as well, so is included here.

<sup>108</sup> CBC News, "And there were none: Last 2 wolves leave Banff's Bow Valley" (7 September 2017) CBC, online: < <http://www.cbc.ca/news/canada/calgary/wolves-banff-national-park-bow-valley-1.4278339> >

<sup>109</sup> Skrajny, *supra* note 102 at 13

<sup>110</sup> Michele Jarvie, "'Legacy of decisions' blamed for decimation of Bow Valley wolf pack" (22 April 2017) Calgary Herald, online: < <http://calgaryherald.com/news/local-news/legacy-of-decisions-blamed-for-decimation-of-bow-valley-wolf-pack> >

<sup>111</sup> Cathy Ellis, "New wolf pack may be forming in Banff" (23 November 2017) Rocky Mountain Outlook, online: < <http://www.rmoutlook.com/article/New-wolf-pack-may-be-forming-in-Banff-20171123> >

<sup>112</sup> *Ibid*

<sup>113</sup> CBC, *supra* note 109

## WildSmart

WildSmart is a program of the Biosphere Institute of the Bow Valley, serving “all residents and visitors to the Bow Valley (including Canmore, the MD of Bighorn communities of Harvie Heights, Exshaw, Lac Des Arc and Kananaskis Country).”<sup>114</sup> It is “a proactive conservation strategy that encourages efforts by communities to reduce negative human-wildlife interactions.”<sup>115</sup> They are “a coalition of community members, government entities, environmental organizations and businesses,” with the “three pillars of [their Bow Valley] conservation strategy [being] Education and Outreach, Attractant Management and Bear Management.”<sup>116</sup> They provide weekly bear activity summaries, as well as resources, “basics”, connections to people, and initiatives, including education and outreach, attractant management, and the “proper use of bear spray.”<sup>117</sup>

A 2017 documentary “Living with Wildlife”<sup>118</sup>, highlighting the successes of human-wildlife coexistence in the Bow Valley, was created in partnership between Bear Conflict Solutions, Calgary Foundation, Town of Canmore, Alberta Parks and Environment, Parks Canada, Yellowstone to Yukon [Y2Y], CPAWS, and the Nature Conservancy of Canada. The film describes the successes of coexistence in “the busiest place in the world where humans and grizzlies coexist.” It reviews the wildlife corridors and fencing, human use and monitoring along with trails and closures, the story of Bear 148, and addresses the roles of garbage, wildlife highway crossings, corridors, aversive conditioning, and the Wildsmart organization

## Bow Valley Roundtable

The Town of Canmore currently identified that the “increase in growth and development in the Bow Valley [has led to] more frequent encounters between humans and wildlife.”<sup>119</sup>

Noting the need to “reduce the risk to both humans and wildlife,” officials from Canmore, Banff, Parks Canada, and the Government of Alberta formed a Roundtable on Human Wildlife Coexistence.<sup>120</sup> Canmore believes that “with collaboration among our partners and stakeholders, [we can] reduce food sources close to areas where there is high human use, implement and enforce temporary area closures when wildlife is present, work together to address issues when wildlife crosses jurisdictional boundaries, increase effectiveness of public education, and designate and enforce areas where wildlife habitat is the primary land use.”<sup>121</sup>

The Bow Valley Human/Wildlife Coexistence Roundtable was convened and formed a technical working group “of governmental and non-governmental stakeholders and subject-matter experts” in November 2017.<sup>122</sup> Objectives include “develop[ing] proactive measures to reduce the

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<sup>114</sup> WildSmart, online: < [www.wildsmart.ca](http://www.wildsmart.ca) >

<sup>115</sup> *Ibid*

<sup>116</sup> *Ibid*

<sup>117</sup> *Ibid*

<sup>118</sup> Leanne Allison, Director, Front Range Films, *Living With Wildlife* (documentary, 2017), screened at Esker Foundation 16 November 2017, online < <https://vimeo.com/200731368> >

<sup>119</sup> Town of Canmore, *Human -Wildlife Coexistence in the Bow Valley*, online: < <https://canmore.ca/residents/stewardship-of-the-environment/managing-human-wildlife-conflict> >

<sup>120</sup> *Ibid*

<sup>121</sup> *Ibid*

<sup>122</sup> Bow Valley Human/Wildlife Coexistence Roundtable: Terms of Reference (November 9, 2017) (<https://canmore.ca/documents/livable-canmore/2245-bvhwc-roundtable-terms-of-reference>)

frequency of human/wildlife conflict in the Bow Valley over the short, medium and long term while maintaining the viability and functionality of wildlife corridors and habitat patches for wildlife” and “identify[ing] how agencies manage specific incidents of human/wildlife conflict and, if needed, suggest[ing] ways to standardize and improve decision-making, management actions and public awareness.”<sup>123</sup> The project is to be complete in May 2018. The Roundtable is chaired by the MLA and the two Mayors, and consists of officials from Canmore, Banff, the Government of Alberta, and Parks Canada. The working group consists of members from Banff, Canmore, Alberta Parks and Wildlife, Fish and Wildlife, Banff National Park, Y2Y, Wildsmart, and CPAWS. Its vision is that:

Wildlife in the Bow Valley are able to effectively utilize their natural habitat with minimal human disturbance while avoiding developed areas such as town sites and campgrounds. Human wildlife conflict management is coordinated and integrated among the responsible agencies and the public understands their decisions and actions.<sup>124</sup>

### **BearSmart**

BearSmart is an Alberta Environment and Parks “public awareness program for people visiting, living or working in bear territory [with goals to]: empower Albertans with the information to make safe decisions when in bear territory, help bear populations survive by educating people on how to prevent encounters and how to respond appropriately in a bear encounter, and to reduce property damage caused by bears.”<sup>125</sup> BearSmart describes the risks when bears identify food sources in “human camps, garbage dumps, residential areas, ranches and farms,”<sup>126</sup> and the weaknesses involved in “moving and collaring problem bears.”<sup>127</sup> BearSmart municipal activity includes actions related to garbage management, landfills, and green spaces. The following are BearSmart communities:<sup>128</sup>

- Bow Valley WildSmart
- Crowsnest Pass Conservation BearSmart Committee
- Grande Prairie
- Mountain View
- Southwest Alberta Agricultural Initiative – “Cowboys and Carnivores project”

The Crowsnest Pass BearSmart Association is a notable successful arrangement. It is a not-for-profit group whose volunteers work with Alberta Fish and Wildlife.<sup>129</sup> The Association notes:

[t]he BearSmart name is a blanket name that anyone can use, but the difference between the groups is the program delivery, experience and training abilities of those running the program, and of course the relationships with those in charge of wildlife management and emergency services. [...]

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<sup>123</sup> *Ibid*

<sup>124</sup> *Ibid*

<sup>125</sup> Alberta Environment and Parks, *Alberta BearSmart*, online: <<http://aep.alberta.ca/recreation-public-use/alberta-bear-smart/default.aspx>>

<sup>126</sup> *Ibid*

<sup>127</sup> *Ibid*

<sup>128</sup> *Ibid*

<sup>129</sup> Crowsnest Pass BearSmart Association, online: <<http://www.cnpbearsmart.com/>>

The goal of the program is to reduce the number of bear mortalities, bear relocations, the number of bear/human conflicts and the number of officer man hours spent on bear complaints, making it possible to coexist with the wildlife in the valley.<sup>130</sup>

Their programs have included bear proof bins, apple tree exchange, education events, monitoring, Karelian bear dogs, and collaboration with residents, business owners, and the municipality.<sup>131</sup> Their priorities are to include the bears, the community, and volunteers.<sup>132</sup>

The Bear Conflict Solutions Institute (formerly the Karelian Bear Shepherding Institute of Canada) is a locally based not for profit society with a Canmore address.<sup>133</sup> They list the BearSmart communities of Mountain View BearSmart, Crowsnest Pass Conservation Society, and Bow Valley WildSmart.

Fort McMurray saw an increase in bears entering the city following the 2016 wildfires and evacuation. While Fort McMurray is not a BearSmart community, it was described as a “bear aware” city, and parties including the company Bear Scare, servicing oil sands businesses, as well as Alberta Fish and Wildlife are present.<sup>134</sup>

## Other

The Miistakis Institute is a Calgary-based charitable organization that provides scientific information to land managers and stakeholders. Being “a research institute, a conservation charity, and a social enterprise allows Miistakis to play the different roles necessary to broker, transfer or mobilize knowledge. Miistakis is able to take knowledge from the realm of academia to the realm of land and resource management,”<sup>135</sup> they have supported projects of the Calgary Regional Partnership, among other things.

A collaboration, Community Conserve, has been formed between the Miistakis Institute, Environmental Law Centre, Alberta Urban Municipalities Association (AUMA), and the Alberta Association of Municipalities and Counties (AAMDC) as “a forum for Alberta municipalities to identify common environment and conservation issues, then pool their resources to address them.”<sup>136</sup>

Monitoring of indicators under SSRP’s (draft) Biodiversity Management Framework is to be done in part through the Alberta Biodiversity Monitoring Institute [ABMI].<sup>137</sup>

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<sup>130</sup> Crowsnest Pass BearSmart Association, “CNP Bearsmart Association- a snapshot” (23 December 2013), online: <<http://www.cnpbearsmart.com/cnp-bearsmart-association-a-snapshot/>>

<sup>131</sup> Alberta, “Crowsnest Pass Conservation BearSmart Committee”, online: <<http://aep.alberta.ca/recreation-public-use/alberta-bear-smart/bear-smart-communities/crowsnest-pass/default.aspx>>

<sup>132</sup> Sean Nichols, “lessons from the Crowsnest Pass BearSmart Program: Work with the community, work with the bears” (June 2015) 23:2 Wild Lands Advocate 16 (online: Alberta Wilderness Association <[https://albertawilderness.ca/wordpress/wp-content/uploads/20150600\\_ar\\_wla\\_lessons\\_bearsmart\\_crowsnest.pdf](https://albertawilderness.ca/wordpress/wp-content/uploads/20150600_ar_wla_lessons_bearsmart_crowsnest.pdf)>

<sup>133</sup> Bear Conflict Solutions Institute, *Alberta BearSmart*, online: <[www.bearconflict.org](http://www.bearconflict.org)>

<sup>134</sup> “Black bears scavenging empty Fort McMurray” (20 May 2016) CBC, online: <<http://www.cbc.ca/news/canada/edmonton/black-bears-fort-mac-1.3593045>>

<sup>135</sup> Miistakis Institute, online: <http://rockies.ca/>

<sup>136</sup> Community Conserve, “ALSA’s Conservation Tools for Municipalities: A Webinar Series” Online: Community Conserve <<http://www.communityconserve.ca/>>

<sup>137</sup> SSRP, *supra* note 22 at 132



ABMI is a “not-for-profit, non-regulatory, arms-length Institute that uses a federated and distributed service model, delivered jointly by the University of Alberta, the Royal Alberta Museum, and InnoTech Alberta.”<sup>138</sup>

It is worth mention that there is a National Urban Park in Canada. Rouge National Urban Park (“Rouge Park”) is located in the Greater Toronto area, having been created in 2015<sup>139</sup> and increased in 2017.<sup>140</sup> It is the “first of its kind in Canada – a national park in a city – [and] protects nature, culture, and agriculture in an integrated way and stretches across the cities of Toronto, Markham, and Pickering and the Township of Uxbridge, from Lake Ontario to the Oak Ridges Moraine.”<sup>141</sup> Alberta is not home to any urban national parks, but is home to national parks, and those national parks may be home to urban areas including Banff, Jasper, and Waterton. There are provincial parks located within city limits (eg Fish Creek Provincial Park in Calgary), which fall under provincial jurisdiction.

#### 4. LEGISLATIVE AND POLICY FRAMEWORKS

Biodiversity in urban areas in Alberta is subject to international, federal, provincial, and municipal law and policy. It falls primarily under provincial jurisdiction with limits and exceptions. Some provincial authority is delegated and/or managed by municipalities and municipal regions. In Alberta, the LUF and its implementing provincial legislation, the *Alberta Land Stewardship Act* [ALSA],<sup>142</sup> its constituent Regional Plans and sub-regional plans apply, including the inchoate Biodiversity Management Frameworks. Recent changes to the *Municipal Government Act* [MGA]<sup>143</sup> will affect the legislative framework governing urban biodiversity. The results of these changes are not yet fully known. This section reviews this legislative framework. The framework is not structured in a way that lends well to synthesis. The LUF generally directs considerations to include biodiversity, and the *MGA* mandates municipal regional planning, which must also comply with LUF, but does not mandate considerations regarding biodiversity. Many details around regional planning are not yet confirmed. Biodiversity remains largely a matter of discrete policies.

##### Legislation of Wildlife

Wildlife in Canada is not expressly contemplated in the *Constitution Act, 1867*,<sup>144</sup> but has been considered to fall under provincial legislative authority under s.92(13) (property and civil rights in the province) and s.92(16) (generally all matters of a merely local or private nature in the province)

<sup>138</sup> Alberta Biomonitoring Institute, online: < <http://www.abmi.ca/home/about-us/governance-funding.html> >

<sup>139</sup> *Rouge National Urban Park Act*, SC 2015, c10

<sup>140</sup> Parks Canada, “Rouge National Urban Park: Bill C-18 receives Royal Assent” (10 July 2017), online: <https://www.pc.gc.ca/en/pn-np/on/rouge/info/nouvelles-news/20170710-billc18>

<sup>141</sup> Parks Canada, “Governments of Canada and Ontario Announce Historic Rouge National Urban Park land Transfer” (21 October 2017), online: < [https://www.canada.ca/en/parks-canada/news/2017/10/governments\\_of\\_canadaandontarioannouncehistoricrougenationalurba.html](https://www.canada.ca/en/parks-canada/news/2017/10/governments_of_canadaandontarioannouncehistoricrougenationalurba.html) >

<sup>142</sup> *Alberta Land Stewardship Act*, SA 2009, cA-26 [ALSA]

<sup>143</sup> *Municipal Government Act*, RSA 2000, cM-26 (as amended) [MGA], further discussed in 4.5, below

<sup>144</sup> *Constitution Act, 1867* (UK), 30 & 31 Vict, c3, reprinted in RSC1985, Appendix II, No 5. Section 109 was extended to the Prairie Provinces by operation of the *Natural Resources Transfer Agreement* and the *Constitution Act, 1930*

and s.109 (all lands, mines, minerals, and royalties [belong to the provinces]).<sup>145</sup> Wildlife is considered to be property owned by the Crown as a result of the legal tradition considering wildlife to be part of land, and associating land ownership with a “right to harvest wildlife.”<sup>146</sup> An individual may gain an ownership interest, for example under the *Wildlife Act*.<sup>147</sup>

Areas including the environment and natural resources fall under concurrent federal and provincial legislative competence.<sup>148</sup> In 2006, Kennedy and Donihee note federal authority over migratory birds,<sup>149</sup> matters of international trade and commerce,<sup>150</sup> interjurisdictional wildlife, and fisheries.<sup>151</sup> Wildlife management within federal land within the province also remains under federal jurisdiction.<sup>152</sup> Federal jurisdiction will also cover federal species at risk,<sup>153</sup> and Indian reserves, which are federal land.<sup>154</sup> Kennedy and Donihee stress the importance of cooperation between both levels of government.

Both levels of government have essential roles to play in our national framework for the protection of and management of wildlife. In order to ensure a coordinated framework for wildlife management, cooperative federalism is essential. Our constitution sets out a division of powers, which includes limits on both federal and provincial jurisdiction over wildlife. Only a cooperative effort will ensure the long term presence of wildlife on our landscapes.<sup>155</sup>

Jim Donihee noted three stages in the evolution of Canadian wildlife law:

Stage 1: The “game management era” (Confederation to the 1960s);

Stage 2: the “wildlife management era” (1960s to mid 1980s); and

Stage 3: the “sustainable wildlife management era” (mid-1980s to the time of writing (2000))

Alberta’s wildlife legislation relates primarily to issues associated with hunting. In a 2006 cross-country comparative overview of wildlife laws, Passelac-Ross noted:

The wildlife management paradigm embodied in wildlife acts is characterized by the following features identified by Valerius Geist: public ownership of the wildlife, strict controls on killing of wildlife, elimination or strict management of market hunting,

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<sup>145</sup> See Priscilla Kennedy and John Donihee, *Wildlife and the Canadian Constitution*, Canadian Wildlife Law Project Paper #4 (Canada: Canadian Institute of Resources Law, August 2006), online: < <http://cirl.ca/publications/wildlife-law-papers> >

<sup>146</sup> *Municipal Government Act*, RSA 2000, cM-26 (as amended) at 7

<sup>147</sup> Laura D Kumpf and Elaine Hughes, “Wildlife Sector Overview”, in Elaine L Hughes, Arlene J Kwasniak & Alistair Lucas, *Public Lands and Resources Law in Canada* (Toronto: Irwin Law Inc, 2016), Espec chapter 14: Wildlife Sector Overview, p293ff

<sup>148</sup> Kennedy and Donihee, *supra* note 147 at 4

<sup>149</sup> *The Migratory Birds Convention*, via the *Migratory Birds Convention Act*

<sup>150</sup> *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRIITA), SC 1992, c52 – incorporates the Convention on International Trade in Endangered Species of wild fauna and flora (CITES) (1973, ratified by Canada 1975)

<sup>151</sup> Kennedy and Donihee, *supra* note 147

<sup>152</sup> *Canada National Parks Act*, SC 2000, c32. See Kennedy and Donihee, *supra* note 147

<sup>153</sup> *Species at Risk Act*, SC 2002, cC-5

<sup>154</sup> Indian lands fall under federal jurisdiction under s.91(24) of the *Constitution Act, 1867*

<sup>155</sup> Kennedy and Donihee, *supra* note 147 at 14

allocation of harvestable surpluses based on equal opportunities for all users, and interjurisdictional cooperation.<sup>156</sup>

Alberta's wildlife legislation adopts this paradigm, however Kumpf and Hughes note that habitat protection and land-based wildlife management incorporates new techniques.<sup>157</sup> Kumpf and Hughes write, "[h]abitat protection is ultimately deemed to be the most effective tool for conservation since a species' survival is ultimately dependent on its habitat. Types of habitat protection include legally protected areas, land stewardship, prohibitions against harming a nest or dwelling, and through the minister acquiring land or designating private or public land as protected."<sup>158</sup> Wildlife legislation in Alberta is not habitat-based, but includes designation of protected areas including habitat conservation areas, wildlife sanctuaries, migratory bird lure sites, and wildlife control areas.<sup>159</sup> Considerations of land-based wildlife management support regional and land-based approaches to biodiversity, such as regional land-use planning and use of municipal regional planning.

Alberta's LUF is a provincial exercise of legislative authority, so covers matters related to wildlife as well as the environment. Notably, regulation under LUF has superordinate authority over other provincial law. Regional and sub-regional plans are encompassed by this framework and will be discussed in 3.4, below.

Provincial legislative authority may be exercised by municipalities. This will be discussed in section 4.5, below.

In law and policy, urban wildlife falls within biodiversity measures and pest control. Alberta Fish and Wildlife retains jurisdiction over wildlife. Municipalities may exercise some management functions, for example, Calgary's *Integrated Pest Management Plan*<sup>160</sup> includes provisions regarding beavers and ground squirrels. The municipality restricts hunting in its boundaries.<sup>161</sup> The framework reviewed below addresses biodiversity.

To illustrate the complexity of this framework, two related charts are reproduced in Appendix B: the draft BMF's Table 1: "Key Components of Management of Biodiversity in the South Saskatchewan Region",<sup>162</sup> and a table from the Edmonton *Biodiversity Action Plan* titled "Legislation, Policy and Plans Governing Biodiversity Protection in Edmonton."

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<sup>156</sup> Monique Passelac-Ross, *Overview of Provincial Wildlife Laws*, Canadian Wildlife Law Project Paper #3 (Canada: Canadian Institute of Resources Law, July 2006), online: < <http://cirl.ca/publications/wildlife-law-papers> >, citing Valerius Geist, "North American Policies of Wildlife Conservation" in Valerius Geist, *Wildlife Conservation Policy* (Calgary: Detselig Enterprises Ltd., 1995) at 77-127

<sup>157</sup> Kumpf and Hughes, *supra* note 149 at 295

<sup>158</sup> Kumpf and Hughes, *supra* note 149 at 295, citing Passelac-Ross, *supra* note 159 at 18

<sup>159</sup> *Wildlife Act*, ss.103(1)(b), (p), and see *Wildlife Regulation*, Schedule 11 and 12. See discussion in Passelac-Ross, *supra* note 159

<sup>160</sup> Calgary, *Integrated Pest Management Plan*, online: < <http://www.calgary.ca/CSPS/Parks/Documents/Planning-and-Operations/Pest-Management/integrated-pest-management-plan.pdf> >

<sup>161</sup> See Calgary Bylaw 20M88, *A Bylaw of the City of Calgary to Control and Regulate the Use of Streets in the City and to Restrict and Regulate Activities on, Adjacent, or Near to Streets*, at ss.8-11.1 "Dangerous and Unlawful Practices," which prohibit and restrict discharge of weapons and projectiles within the City. See also *Criminal Code*, RSC 1985, cC-46, s.175(1)(d). More research would be needed to clarify the authorities around restrictions of the *Wildlife Act* within municipalities

<sup>162</sup> As found in the Draft SSRP BMF, *infra* note 226 at 16-7

## 4.1 International

Canada has a variety of formal and informal international commitments with respect to wildlife.<sup>163</sup> Additional international instruments may be applicable to endangered species and migratory birds.<sup>164</sup>

Canada is signatory to the United Nations *Convention on Biological Diversity* [CBD]<sup>165</sup>. The CBD requires signatories to “translate this overarching international framework into revised and updated national biodiversity strategies and action plans.”<sup>166</sup> The CBD’s objective is “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits.”<sup>167</sup> The *CBD Strategic Plan for Biodiversity 2011-2020* was created in 2010.

The cities of Calgary and Edmonton are signatory<sup>168</sup> to the Durban Commitment: Local Governments for Biodiversity,<sup>169</sup> thereby “formally join[ing] an international program directed by Local Action for Biodiversity [LAB], a program representing local governments from across the world to improve biodiversity planning and management. By signing this commitment, The City acknowledges ‘accountability and responsibility for the health and wellbeing of our communities through protecting, sustainably utilizing and managing biodiversity and recognizing its role as the foundation of our existence.’”<sup>170</sup> LAB is coordinated by a non-profit global organization of over 1,000 municipalities known as ICLEI – Local Governments for Sustainability,<sup>171</sup> based in South Africa. The Durban Commitment is an acknowledgment and does not carry the legal authority of signing a United Nations convention.

The LAB process involves five steps:

Step 1: Development of a biodiversity report that documents the current state of biodiversity and its management within each city

Step 2: Ensuring long-term commitment by city leadership to sustainable biodiversity management through LAB cities formally signing a local government biodiversity declaration

Step 3: Development of a 10-year biodiversity action plan and framework that will include commitments to biodiversity implementation plans and integration within broader city plans

Step 4: LAB cities’ formal acceptance of their 10-year biodiversity action plans and frameworks

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<sup>163</sup> See Nigel Bankes, *International Wildlife Law* Canadian Wildlife Law Project Paper #1 (Canada: Canadian Institute of Resources Law, February 2006), online: < <http://cirl.ca/publications/wildlife-law-papers> >

<sup>164</sup> See Kumpf and Hughes, *supra* note 149 at 307

<sup>165</sup> *United Nations Convention on Biological Diversity*, 11 June 1992, 1760 UNTS 79, 31 ILM 818 (1992) (entered into force 29 December 1993) [CBD]

<sup>166</sup> *Our BiodiverCity*, *supra* note 12 at 42

<sup>167</sup> Hinterland Who’s Who, *Benefits of Wildlife*, online: Canadian Wildlife Federation, Hinterland Who’s Who, < <http://www.hww.ca/en/issues-and-topics/benefits-of-wildlife.html> >

<sup>168</sup> Edmonton signed in 2008, Calgary signed in 2016. Montreal is also signatory to the Durban Commitment.

<sup>169</sup> The Durban Commitment: Local Governments for Biodiversity, ICLEI: Local Governments for Sustainability, online: ICLEI < <http://archive.iclei.org/index.php?id=12224> >

<sup>170</sup> Calgary Parks, *Calgary’s Biodiversity*, online: < <http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Biodiversity.aspx> >

<sup>171</sup> Robinson, *supra* note 30 at 17

Step 5: Implementation of five new on-the-ground biodiversity interventions by the end of the three-year project<sup>172</sup>

## 4.2 Federal

This paper does not explore the regulation of biodiversity on federal lands, including Banff National Park, save to note this distinction. This difference of jurisdiction may prompt opportunities for cooperation for example, in the Bow Valley Corridor between Banff and Canmore, and in the area where the Tsuu T'ina Indian Reserve borders the City of Calgary.<sup>173</sup>

**Canadian Biodiversity Strategy:** Canada first ratified the CBD in 1992, prompting development of the *Canadian Biodiversity Strategy*.<sup>174</sup> The purpose of the strategy “is to conserve biodiversity, use ecological resources sustainably, and contribute internationally to biodiversity efforts<sup>175</sup>. Canada’s revised National Biodiversity Strategy and Action Plan is constituted by the *2020 Biodiversity Goals and Targets for Canada*<sup>176</sup> and the *Biodiversity Outcomes Framework*, as well as the *Canadian Biodiversity Strategy*.<sup>177</sup> The Canadian Biodiversity Strategy “recognizes existing constitutional and legislative responsibilities for biodiversity in Canada and emphasizes the importance of inter-governmental cooperation to create policy, management and research conditions necessary to advance biodiversity conservation. Federal, provincial and territorial governments, in cooperation with stakeholders and members of the public, will pursue implementation of the directions contained in The Strategy according to their policies, plans, priorities and fiscal capabilities.”<sup>178</sup>

As discussed above, Canada has federal jurisdiction for environment and natural resources (concurrent with the provinces), and authority regarding migratory birds<sup>179</sup> and interjurisdictional wildlife, as well as species at risk,<sup>180</sup> and federal lands including national parks, and Indian reserves. Kumpf and Hughes write “[g]enerally, the federal legislation applies to federal land and federal species (migratory birds, fisheries), while provincial legislation applies to provincial land. If the province has inadequate coverage, the federal legislation will step in.”<sup>181</sup>

## 4.3 Provincial (Alberta)

As previously discussed, wildlife falls primarily under provincial legislative authority. As stated in *Our BiodiverCity*, “The provincial Government of Alberta and the federal Government of

<sup>172</sup> *City of Edmonton Biodiversity Report*, *supra* note 28 at 4

<sup>173</sup> A more detailed look at the legislative frameworks of urban biodiversity on federal lands, should such arise, is outside the scope of this paper

<sup>174</sup> *Canadian Biodiversity Strategy*, *supra* note 5

<sup>175</sup> Kumpf and Hughes, *supra* note 149 at 303-4, citing the Species at Risk Public Registry, “National Framework for Species at Risk Conservation,” online: Government of Canada <[www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=236A2A34-1](http://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=236A2A34-1)>

<sup>176</sup> Biodivcanada.ca, “2020 Biodiversity Goals and Targets for Canada,” online: <<http://biodivcanada.ca/default.asp?lang=En&n=9B5793F6-1>>

<sup>177</sup> Canada, “2020 Biodiversity Goals and Targets for Canada”, <https://www.canada.ca/en/parks-canada/news/2016/12/2020-biodiversity-goals-targets-canada.html> . See also [www.Conservation2020canada.ca](http://www.Conservation2020canada.ca)

<sup>178</sup> *Our BiodiverCity*, *supra* note 12 at 42

<sup>179</sup> See the *Migratory Birds Convention Act*, RSC 1985, cW-9

<sup>180</sup> *Species at Risk Act*, SC 2002, cC-5 [SARA]

<sup>181</sup> Kumpf and Hughes, *supra* note 149 at 303

Canada have stronger and broader powers [than the City] to directly regulate environmental issues such as air and water quality, pollution, wildlife management and species at risk.”<sup>182</sup>

Alberta’s wildlife legislation relates primarily to issues associated with hunting, in the traditional paradigm discussed above. Wildlife legislation in the province is not habitat-based, but includes designation of protected areas including habitat conservation areas, wildlife sanctuaries, migratory bird lure sites, and wildlife control areas.<sup>183</sup> Considerations for land-based wildlife management support regional and land-based approaches to biodiversity, such as regional land-use planning and use of municipal regional planning.

The relevant statutes include the *Wildlife Act*, and the *Environmental Protection and Enhancement Act* [EPEA],<sup>184</sup> which governs environmental matters generally. The government has included provisions in the *Wildlife Act* that address endangered species<sup>185</sup> and habitat protection.<sup>186</sup> The province has adopted a policy concerning species at risk called *Alberta’s Strategy for the Management of Species at Risk 2009-2014*.<sup>187</sup> The *Wildlife Act* applies generally to municipalities but does not specifically address urban environments, does not cover all animals,<sup>188</sup> or broadly provide for habitat protection: it is relevant to urban biodiversity but does not provide overarching direction. EPEA includes direction specific to municipalities and local authorities.

Municipalities and therefore urban areas are governed by the provincial MGA,<sup>189</sup> as amended. Recent and current changes to the MGA are relevant to urban biodiversity and are discussed in section 4.5.1, below.

The provincial government had commenced creating a provincial *Biodiversity Policy*<sup>190</sup> in 2015, but none has been completed to date.

The LUF and its enabling statute ALSA are provincial creations. Their legislative authority applies also to the Regional and sub-regional Plans created under them. Alberta’s land-use planning framework is discussed in section 4.4, below.

EPEA<sup>191</sup> applies generally to municipalities. It includes special provision about delegation and administration by local authorities.<sup>192</sup> EPEA does not specifically address preservation of

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<sup>182</sup> *Our BiodiverCity*, *supra* note 12 at 16

<sup>183</sup> *Wildlife Act*, ss.103(1)(b), (p), and see *Wildlife Regulation*, Schedule 11 and 12. See discussion in Passelac-Ross, *supra* note 16

<sup>184</sup> *Environmental Protection and Enhancement Act*, RSA 2000, cE-12 [EPEA]

<sup>185</sup> *Wildlife Act*, RSA 2000, cW-10, s6, etc., and *Wildlife Regulation*, Alta Reg 143/1997, s7, etc.

<sup>186</sup> *Ibid*, s36, 103(1)(b) etc.

<sup>187</sup> Alberta, *Alberta’s Strategy for the Management of Species at Risk (2009-2014)* (2008), online: Alberta Environment and Parks < <http://aep.alberta.ca/fish-wildlife/species-at-risk/documents/StrategyManagementSpeciesRisk2009-14.pdf> >

<sup>188</sup> The *Wildlife Act* at s.1(1)(l) defines “wildlife” as “big game, birds of prey, fur-bearing animals, migratory game birds, non-game animals, non-licence animals and upland game birds, and includes any hybrid offspring resulting from the crossing of 2 wildlife animals or that belong to the Crown as a result of the application of section 7(4)”

<sup>189</sup> *MGA*, *supra* note 145

<sup>190</sup> Alberta, *Alberta’s Biodiversity Policy DRAFT* (Alberta: 2015) **Draft** [unpublished], online: Alberta Environmental Network < [http://www.aenweb.ca/files/draft\\_albertas\\_biodiversity\\_policy\\_december\\_2014.pdf](http://www.aenweb.ca/files/draft_albertas_biodiversity_policy_december_2014.pdf) >

<sup>191</sup> EPEA, *supra* note 187

<sup>192</sup> *Ibid*, s.18

biodiversity in urban areas. Reference is made to hazardous substances and pesticides,<sup>193</sup> and waste minimization, recycling and waste management.<sup>194</sup> Purposes of EPEA include:

2. The purpose of this Act is to support and promote the protection, enhancement and wise use of the environment by recognizing the following:
  - (a) the protection of the environment is essential to the integrity of ecosystems and human health and to the well-being of society;
  - (b) the need for Alberta's economic growth and prosperity in an environmentally responsible manner and the need to integrate environmental protection and economic decisions in the earliest stages of planning;
  - (c) the principle of sustainable development [...];
  - (d) the importance of preventing and mitigating the environmental impact of development and of government policies, programs and decisions; [...]<sup>195</sup>

Actions under EPEA must be in accordance with ALSA regional plans (s.3.1).

The *Wildlife Act* applies generally to municipalities as well, although no specific provision is made.

#### 4.4 Alberta Land-Use Planning

##### *Land use Framework*

The provincial government instituted an innovative, comprehensive provincial land-use planning framework starting in 2008 through the LUF and its enacting legislation, *ALSA*. By nature, this framework covers wildlife habitat generally, and has potential for more direct regulation and management. *ALSA* categorizes the province into seven land-use regions based on river basins and directs that comprehensive regional land-use plans be created for each region.<sup>196</sup> Alberta's LUF is provincial law and policy. Notably, *ALSA* has superordinate authority over other provincial laws. *ALSA* provides that it will prevail over other enactments in the event of a conflict<sup>197</sup> and regional plans, considered to be regulations,<sup>198</sup> will prevail over other regulatory instruments or regulations, but not over Acts in the event of a conflict.<sup>199</sup> Regional and sub-regional plans are encompassed by this framework.

To date, the Lower Athabasca Regional Plan<sup>200</sup> (LARP), which includes Fort McMurray and the oil sands, and South Saskatchewan Regional Plan<sup>201</sup> (SSRP), which includes the Calgary

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<sup>193</sup> *Ibid*, ss.154-167

<sup>194</sup> *Ibid*, ss.168-193

<sup>195</sup> *Ibid*, s.2

<sup>196</sup> See Sara L Jaremko, *A Critical Exploration of the South Saskatchewan Regional Plan in Alberta*, CIRL Occasional Paper #54 (Canada: Canadian Institute of Resources Law, March 2016), online: <  
<http://cirl.ca/publications/occasional-papers> >

<sup>197</sup> *ALSA*, *supra* note 144 at s.17(4)

<sup>198</sup> *Ibid* at s.13(2). The regional plans themselves include policy as well as regulatory components

<sup>199</sup> *Ibid* at ss.17(1) and (3)

<sup>200</sup> Alberta, *Lower Athabasca Regional Plan 2012-2011* (Alberta: 2012), online: <  
<https://www.landuse.alberta.ca/LandUse%20Documents/Lower%20Athabasca%20Regional%20Plan%202012-2022%20Approved%202012-08.pdf> > [LARP]

<sup>201</sup> SSRP, *supra* note 22

area, have been completed and become effective, and the North Saskatchewan Regional Plan<sup>202</sup> (NSRP), which includes the Edmonton area, is under development.<sup>203</sup>

The LUF's vision is that "Albertans work together to respect and care for the land as the foundation of our economic, environmental and social well-being."<sup>204</sup> Its three desired outcomes are: "healthy economy supported by our land and natural resources, [...] healthy ecosystems and environment, [and] people-friendly communities with ample recreational and cultural opportunities."<sup>205</sup> LUF describes the outcomes as "inter-related and of equal importance although trade-offs may be required."<sup>206</sup>

A priority of the LUF was to include creation of metropolitan plans for the Calgary and Capital regions, which were scheduled to be completed in 2009.<sup>207</sup> The LUF noted that these plans were already under development by the Capital Region Board and the Calgary Regional Partnership [CRP].<sup>208</sup> The resulting plans will be discussed in section 4.5.4, below. The LUF notes that the metropolitan plans were likely to be complete prior to completion of the regional plans, and, citing urgency, that "once completed, the regional plans will provide guidance to future updates of the metropolitan plans."<sup>209</sup>

Municipalities are subject to ALSA. "[ALSA] requires decision-making and local government bodies to review their regulatory instruments then make any necessary changes to ensure these instruments comply with the regional plan,"<sup>210</sup> and in the South Saskatchewan region, "[d]ecision-making bodies affected by SSRP must submit their compliance declarations by September 1, 2016 while local government bodies must submit their compliance declarations by September 1, 2019."<sup>211</sup>

### ***Biodiversity under LUF and Regional Plans***

The LUF and its regional plans contemplate biodiversity extensively. As well, each regional plan is intended to include a Biodiversity Management Framework as a sub-regional plan. Linear Management Frameworks are also underway that will affect habitat.

The SSRP is described by Calgary's *Our BiodiverCity* as a plan that

establishes a long-term vision for the region encompassing Calgary. It aligns provincial policies at the regional level to balance Alberta's economic, environmental and social goals. It sets desired economic, environmental and social outcomes and objectives for the region. It describes the strategies, actions, approaches and tools required to achieve the desired outcomes and objectives. It establishes monitoring, evaluation and reporting

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<sup>202</sup> See Alberta Environment and Parks Land-use Framework, "North Saskatchewan Region," online: <https://landuse.alberta.ca/RegionalPlans/NorthSaskatchewanRegion/Pages/default.aspx>

<sup>203</sup> No draft NSRP or draft NSRP biodiversity management framework was reviewed during research for this project.

<sup>204</sup> LUF, *supra* note 6 at 15

<sup>205</sup> *Ibid* at 15

<sup>206</sup> *Ibid* at 15

<sup>207</sup> *Ibid* at 43

<sup>208</sup> *Ibid* at 44

<sup>209</sup> *Ibid* at 44

<sup>210</sup> Alberta Environment and Parks, "Compliance with Regional Plans", online: < <https://landuse.alberta.ca/governance/natureeffectofregionalplans/pages/compliance.aspx> >

<sup>211</sup> Alberta Environment and Parks, online: < <https://www.landuse.alberta.ca/Pages/default.aspx> >



commitments to assess progress and provides guidance to provincial and local decision-makers regarding land use management for the region.<sup>212</sup>

SSRP includes biodiversity in its following components: as a Strategic Plan and Implementation Plan outcome: “Biodiversity and ecosystem function are sustained through shared stewardship”<sup>213</sup> with corresponding Strategic direction: Conserving and maintaining the benefits of biodiversity.<sup>214</sup> The strategic plan identifies development of a biodiversity management framework to address the objectives, monitoring and measurement of indicators.<sup>215</sup> It continues with discussion of cumulative effects, and connectivity of wildlife habitat, invasive species. The SSRP notes:

Achieving the objectives for biodiversity; healthy, functioning ecosystems; and natural landscapes will require a **full range of management approaches and tools in order to address the complex mix of public lands and private land and how they can contribute to those objectives**. This means further advancing conservation and integrated management of Crown land and supporting and enabling voluntary stewardship and conservation on private land.<sup>216</sup> [emphasis theirs]

### ***Biodiversity Management Frameworks***

LARP and SSRP, and presumably NSRP, are to incorporate and be supported by Biodiversity Management Frameworks (BMFs). LARP was to have developed a BMF in 2013,<sup>217</sup> but none has been completed to date. Its implementation plan’s outcome 3 is “landscapes are managed to maintain ecosystem function and biodiversity.”<sup>218</sup> LARP does include management frameworks for air quality, surface water quality, groundwater, and tailings management.<sup>219</sup>

The SSRP is to include environmental management frameworks for air and surface water quality,<sup>220</sup> as well as a biodiversity management framework, a linear density management framework, and a regional recreation plan.<sup>221</sup> The BMF was to be completed by the end of 2015<sup>222</sup> but none is yet in place.

While no SSRP BMF exists, a draft does,<sup>223</sup> and is in the process of consultation. The draft SSRP BMF does not address matters specific to urban environments. The draft BMF is to be “linked to linear footprint management planning, recreation management planning and forest management planning in the region.”<sup>224</sup> The linear management plan is also not complete.

<sup>212</sup> *Our BiodiverCity*, *supra* note 12 at 42

<sup>213</sup> SSRP, *supra* note 22 at 40 and 56

<sup>214</sup> *Ibid* at 40 and 56

<sup>215</sup> *Ibid* at 56

<sup>216</sup> *Ibid* at 57

<sup>217</sup> LARP, *supra* note 203 at 28

<sup>218</sup> LARP Implementation Plan at 42

<sup>219</sup> <https://www.landuse.alberta.ca/RegionalPlans/LowerAthabascaRegion/Pages/default.aspx>

<sup>220</sup> Alberta Environment and Parks, Regional Planning, “South Saskatchewan”, online: <  
<https://landuse.alberta.ca/CumulativeEffects/EnvironmentalMgmtFrameworks/Pages/default.aspx> >

<sup>221</sup> See Jaremko, *supra* note 199

<sup>222</sup> SSRP, *supra* note 22 at 116

<sup>223</sup> Alberta, *South Saskatchewan Region Biodiversity Management Framework: v.1.0 November 20, 2015* (Alberta: 2015) Draft [unpublished] [Draft SSRP BMF]

<sup>224</sup> *Ibid* at 16

The draft SSRP BMF describes the SSRP context as:

The South Saskatchewan Region has a diversified economy which contributes to the vitality and prosperity of communities within the region. [...] [b]iodiversity and ecosystem function will change over time [...] This framework is intended to ensure that key elements of regional biodiversity and ecosystems are sustained, and that cumulative effects to biodiversity are managed, while meeting economic and social outcomes and the overall vision of the regional plan.<sup>225</sup>

Key biodiversity concerns in the South Saskatchewan Region are: cumulative effects management, conservation of grasslands, connectivity (including human-wildlife interaction), and invasive species.<sup>226</sup>

The draft BMF is to:

complement, not replace, existing programs, policies and initiatives related to managing biodiversity in the region. It will support coordination of the various approaches and tools in the region. [...] While the objectives set in the framework will apply to the entire region (including private lands) it is recognized that any actions by landowners towards meeting objectives is voluntary and subject to availability and landowner interest to use tools such as conservation easements and other mechanisms.<sup>227</sup>

The draft SSRP BMF's objectives are:

- Terrestrial and aquatic biodiversity are maintained
- Biodiversity and healthy, functioning ecosystems continue to provide a range of benefits to Albertans and communities in the region, including First Nations' continued ability to exercise constitutionally protected rights to hunt, fish, and trap for food; and other First Nations cultural practices
- Long-term regional ecosystem health and resiliency are sustained
- Species at risk are recovered and no new species at risk are designated
- Intact grasslands habitat is sustained<sup>228</sup>

The draft SSRP BMFs will be structured in terms of indicators and triggers, monitoring and modelling, and management responses and actions.<sup>229</sup> Indicators are to be categorized as aquatic habitat, terrestrial habitat, aquatic species, and terrestrial species,<sup>230</sup> and tiered. The draft BMF is intended to build upon existing policy and management practices in Alberta, including "species at risk planning, integrated land management, sub-regional planning, hunting and fishing regulations, and rangeland management."<sup>231</sup>

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<sup>225</sup> *Ibid* at 7-8

<sup>226</sup> Alberta, "South Saskatchewan Regional Plan Strategies Biodiversity Management Framework", online: <[http://cpaws-southernalberta.org/upload/SSR\\_Phase2\\_BMF\\_Preview\\_Package\\_March\\_11\\_2015.pdf](http://cpaws-southernalberta.org/upload/SSR_Phase2_BMF_Preview_Package_March_11_2015.pdf)>

<sup>227</sup> SSRP, *supra* note 22 at 132

<sup>228</sup> Draft SSRP BMF, *supra* note 226 at 2

<sup>229</sup> *Ibid* at 5 and Alberta Environment and Parks Draft SSR BMF Presentation (December 04, 2015) at slide 20

<sup>230</sup> Draft SSRP BMF, *supra* note 226 at 5 and Alberta Environment and Parks Draft SSR BMF Presentation (December 04, 2015) at slide 25

<sup>231</sup> Draft SSRP BMF, *supra* note 226 at 7

A comprehensive evaluation of the draft BMF is not available, but some conservationist views are known. The conservationist groups expressed support for the draft BMF in principle, but raised concerns. Brittany Verbeek of the AWA expressed concerns about the strength of objectives, with regard to the LUF and international commitments, the need to recognize the value of species at risk indicators, importance of setting limits as well as triggers, and the importance of pro-active management actions to accompany triggers and limits.<sup>232</sup> Katie Morrison of CPAWS Southern Alberta Chapter suggested the BMF include “goals for restoration of biodiversity” in case of thresholds already passed, use of appropriate indicators, inclusion of species at risk, evaluation and implementation of management action, proactive management actions, and prioritization of implementation.<sup>233</sup> Adam Driedzic of the Environmental Law Centre criticized the framework’s lack of measurable objectives, limits, precautionary principle, mandatory and proactive actions.<sup>234</sup> He writes,

It actually perpetuates some negative features of ALSA and the SSRP, including: lack of substantive guidance, broad discretion, limited accountability for outcomes and limited participation in implementation.<sup>235</sup>

#### 4.5 Municipal

Municipal governance of biodiversity occurs largely through policy. Biodiversity is governed through municipal development plans, municipal regional plans, and municipal policy. Many changes resulting from a recent MGA review are relevant to biodiversity. This paper reviews municipal law and policy on biodiversity. This paper does not address considerations relating to funding.

As noted, a municipality can only have the authority properly delegated by the province. As Dr Judy Stewart wrote, “Municipalities are not a level of government, but are ‘creatures of the provincial government,’ exercising the powers granted to them by legislatures in accordance with the Canadian Constitution Act, 1982,”<sup>236</sup> and “[t]he clear limitations on municipal powers to enact bylaws, pass resolutions and engage in environmental management activities continue to be that all municipal environmental management bylaws, decision-making processes and activities must be undertaken to achieve one or more municipal purpose, according to the powers granted to municipalities by the GOA, and they must be consistent with other enactments and regional plans, except perhaps the city charter provisions.”<sup>237</sup>

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<sup>232</sup> Letter from Brittany Verbeek, Conservation Specialist, AWA to Mathieu Lebel, Water Management Planner, Regional Planning Section, Environment and Parks (15 January 2016) Re: AWA’s Comments on the draft SSRP Biodiversity Management Framework

<sup>233</sup> Letter from Katie Morrison, Conservation Director, CPAWS Southern Alberta Chapter (15 January 2016) Re: CPAWS Comments on South Saskatchewan Regional Plan Strategies: Biodiversity Management Framework

<sup>234</sup> Letter from Adam Driedzic, Staff Counsel, Environmental Law Centre to Alberta Environment and Parks (15 January 2016 [says 2015]) Re: Biodiversity Management Frameworks

<sup>235</sup> *Ibid*

<sup>236</sup> Dr Judy Stewart, *Do Recent Amendments to Alberta’s Municipal Government Act Enable Management of Surface Water Resources and Air Quality?*, CIRL Occasional paper# 62 (Canada: Canadian Institute of Resources Law, December 2017), online: < <http://cirl.ca/publications/occasional-papers> > at 5-6

<sup>237</sup> *Ibid* at 35

### ***Municipal Government Act***

The *MGA* contemplates the environment: “Preamble [...] WHEREAS Alberta’s municipalities play an important role in Alberta’s economic, environmental and social prosperity today and in the future;”

In Part 17, Planning and Development, the Purpose of the Part along with its respective regulations and Bylaws is:

To provide means whereby plans and related matters may be prepared and adopted (a) to achieve the orderly, economical and beneficial development, use of land and patterns of human settlement; and (b) to maintain and improve the quality of the physical environment within which patterns of human settlement are situated in Alberta, without infringing on the rights of individuals for any public interest except to the extent that is necessary for the overall greater public interest.<sup>238</sup>

The *MGA* directs creation of Municipal Development Plans by municipalities.<sup>239</sup> MDPs may address “environmental matters within the municipality.”<sup>240</sup> The Part also contains relating to land use and statutory plans,<sup>241</sup> and provisions regarding reserve land, including environmental reserves and conservation reserves and easements.<sup>242</sup>

Part 17, Division 8 (ss.661-670) includes provisions for reserve land, land for roads and utilities, including dedication of conservation and environmental reserves.<sup>243</sup>

Part 17.1, subject of recent changes,<sup>244</sup> governs Growth Management Boards [GMBs]. S.708.02 mandates creation of GMB for Edmonton and Calgary regions by Regulation.<sup>245</sup> It also enables the Lieutenant Governor in Council (on the recommendation of the Minister) to establish a GMB on the request of 2 or more municipalities.<sup>246</sup> Regulations establishing GMBs are to include membership, parts of land included in growth management region, and details about the growth plan to be required – including objectives, contents, timelines, form, effect, services, and processes for establishing and amendment.<sup>247</sup> Provisions confirm that GMBs must act in accordance with any applicable ALSA regional plans.<sup>248</sup> ALSA prevails to the extent of inconsistency with growth plans.<sup>249</sup> Section 708.1 provides for ministerial approval of growth plans, which do not become Regulations, but municipalities must then conform with,<sup>250</sup> including amendments to statutory plans and

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<sup>238</sup> *MGA*, *supra* note 145 s.617

<sup>239</sup> *Ibid* at s.632

<sup>240</sup> *Ibid* at s.632(3)(b)(iii)

<sup>241</sup> Land use policies are subject to regional plans under ALSA (*MGA* s.622(3))

<sup>242</sup> *MGA*, *supra* note 145, Division 8, ss.661-677

<sup>243</sup> *MGA*, *supra* note 145 at ss.661-570

<sup>244</sup> Further Discussed in 4.5.1, below

<sup>245</sup> *MGA*, *supra* note 145 s.708.02(1.1)

<sup>246</sup> *Ibid* at s.708.02(1)

<sup>247</sup> *Ibid* at s.708.02(2)

<sup>248</sup> *Ibid* at s.708.06

<sup>249</sup> *Ibid* at s.708.15

<sup>250</sup> *Ibid* at s.708.12

bylaws.<sup>251</sup> The growth plan will prevail to the extent of inconsistency with statutory plans and bylaws.<sup>252</sup>

Regulations for the Edmonton and Calgary Metropolitan Region Boards mostly mirror one another.<sup>253</sup> The Edmonton regulation renamed the Capital Region Board the Edmonton Metropolitan Region Board (EMRB), and designated the EMRB as GMB for the Edmonton region.<sup>254</sup> The Calgary Metropolitan Region Board (CMRB) is not yet constituted. The Calgary and Edmonton Regulations are much the same: they provide for the establishment of a Growth Plan. The mandate includes:

- S.3 (a) strive towards consensus regarding matters before the Board,  
 (b) promote the long term sustainability of the Edmonton/Calgary Metropolitan Region,  
 (c) ensure environmentally responsible land-use planning, growth management and efficient use of land,  
 (d) develop policies regarding the coordination of regional infrastructure investment and service delivery,  
 (e) promote the economic well-being and competitiveness of the Edmonton/Calgary Metropolitan Region, and  
 (f) develop policies outlining how the Board shall engage the public on the Growth Plan and the Servicing Plan.<sup>255</sup>

The mandates are to be fulfilled by preparing a Growth Plan and Service Plan, and determining the role regarding implementation.<sup>256</sup> The GMB is to “advise and make recommendations to the Minister regarding the implementation of the Growth Plan and the Servicing Plan.”<sup>257</sup> The GMB is to submit to the Minister a proposed growth plan within 3 years of the Regulation<sup>258</sup> and review this plan every 10 years or less unless otherwise directed.<sup>259</sup>

The objectives of the Growth Plan include “coordinat[ing] decisions in the EMR to sustain economic growth and ensure strong communities and a healthy environment,” and “promot[ing] the social, environmental and economic well-being and competitiveness of the EMR.”<sup>260</sup> The Contents of a Growth plan are to address density, infrastructure, “corridors for recreation, transportation, energy transmission, utilities and intermunicipal transit,”<sup>261</sup> and “policies regarding environmentally sensitive areas”<sup>262</sup> although the regulation does not specifically refer to

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<sup>251</sup> *Ibid* at s.708.14

<sup>252</sup> *Ibid* at s.708.14

<sup>253</sup> The *Edmonton Metropolitan Region Board Regulation*, Alta Reg. 189/2017, effective October 31, 2017 replaced the *Capital Region Board Regulation*, Alta Reg 38/2012; and the *Calgary Metropolitan Region Board Regulation*, Alta Reg 190/2017, effective January 1, 2018

<sup>254</sup> MGA, *supra* note 145 at s.708.02(1.2)

<sup>255</sup> *Edmonton Metropolitan Region Board Regulation*, Alta Reg. 189/2017, and the *Calgary Metropolitan Region Board Regulation*, Alta Reg 190/2017 at s.3

<sup>256</sup> *Ibid* at s.3(2)

<sup>257</sup> *Ibid* at s.3(2)(c): although GMB is not regulation, it is to be implemented by the Minister.

<sup>258</sup> *Ibid* at s.791 (ie October 2020 for Edmonton, Jan1/21 for Calgary (s.19)

<sup>259</sup> *Ibid* at s.7(2)

<sup>260</sup> *Ibid* at ss.8(c) and (d)

<sup>261</sup> *Ibid* at s.9(1)(c)

<sup>262</sup> *Ibid* at s.9(1)(e)

biodiversity. The Regulation also references Boards submitting to Minister a Regional Evaluation Framework relating to statutory plans,<sup>263</sup> and references to creations of Servicing Plans.<sup>264</sup>

Notably, the regulation speaks to environmental issues but does not provide direction regarding balances or trade-offs.

Changes to the MGA, including GMBs will be discussed at 4.5.1, below.

#### 4.5.1 Municipal Government Act Changes

Recent and current changes to legislation and regulation of municipal governments<sup>265</sup> will most likely impact the regulation and management of biodiversity in municipalities.

Review of the MGA has prompted substantial changes. Changes associated with the MGA Review came into force October 26, 2017 and January 1, 2018, with some becoming effective in April 2018. Relevant changes to the MGA include the mandated municipal regional growth plans for the Calgary and Edmonton regions, and establishment of inter-municipal collaborative frameworks.<sup>266</sup>

The MGA has been modified relating to environmental matters in a number of ways:<sup>267</sup> Its Preamble now includes a statement that “Alberta’s municipalities play an important role in Alberta’s economic, environmental and social prosperity today and in the future.”<sup>268</sup> The MGA will include “fostering environmental well-being” as a municipal purpose. Conservation reserves, “meant to facilitate the protection of environmentally significant areas,”<sup>269</sup> are newly added to the MGA (Part 17), language pertaining to environmental reserves has been modified, and the definition of water bodies is changed.<sup>270</sup> Additionally, draft City Charter Regulations<sup>271</sup> “clearly delegate authority to both [Calgary and Edmonton] to pass local bylaws to manage components of the environment,”<sup>272</sup> notably including an expansion to the ability to pass environmental bylaws, “including bylaws providing for the creation, implementation and management of programs respecting any or all of the following: [...] (iv) the protection of biodiversity and habitat.”<sup>273</sup>

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<sup>263</sup> *Ibid* at ss.12, 13

<sup>264</sup> *Ibid* at s.16

<sup>265</sup> Review of the MGA occurred through three Bills, the *Municipal Government Amendment Act (MGAA)*, 2015, the *Modernized Municipal Government Act (MMGA)*, 2016, and *An Act to Strengthen Municipal Government (ASMG)*, 2017. See Alberta, <https://mgareview.alberta.ca/whats-changing>

<sup>266</sup> Municipalities must enter into Intermunicipal Collaborative Frameworks with each neighbouring municipality within two years. These provisions will come into force April 1, 2018. See MGA, *supra* note 145, s.631

<sup>267</sup> See Stewart, *supra* note 239 for detailed examination of these changes and their environmental significance

<sup>268</sup> MGA, *supra* note 145 at Preamble. Stewart, *supra* note 239 notes at 22 that “environmental prosperity” is undefined

<sup>269</sup> Brenda Heelan Powell, “Amendments to the Environmental Powers of Municipalities” (19 December 2017), online: Environmental Law Centre < <http://elc.ab.ca/amendments-environmental-powers-municipalities/> >

<sup>270</sup> *Ibid*

<sup>271</sup> MGA, *supra* note 145, part 4.1. Draft regulation for city charters was under consultation in 2017. See Stewart, *supra* note 239 at 20-21

<sup>272</sup> Stewart, *supra* note 239 at 21

<sup>273</sup> Heelan Powell, *supra* note 272

Section 17.1 governing GMBs now mandates GMBs for both Calgary and Edmonton, and prescribes mandatory and discretionary components of their growth plans, as detailed above.

Stewart has written in detail about the environmental implications of the recent changes to the MGA.<sup>274</sup> She examined whether the changes increase municipalities' authority in environmental management, and discussed the proposition that "[a] statutory or legislative scheme has emerged that authorizes municipal environmental management consistent with, and in compliance with, federal and provincial enactments. Through ALSA and recent amendments to the MGA, the GOA has provided municipalities with the authority and responsibility to manage human impacts on components of the environment, such as surface water quality and air quality not only through Part 17, but through enactment and enforcement of other municipal bylaws as well."<sup>275</sup>

Stewart reviews the mandate of the GMB:

There may be opportunities for the newly mandated GMB for the Calgary Metropolitan Area to address environmental management as part of the mandate of the GMB as a discretionary matter. The GMB amendments provide some clarity that municipalities have some jurisdiction to manage some components of the environment at the growth region scale, such as 'environmentally sensitive areas'. These same landscapes are referred to in other amendments as 'environmentally significant features', as explained below.<sup>276</sup>

Stewart however questions whether the GMB regulation may actually limit GMBs in addressing environmental management, "because the new provisions are inherently more prescriptive."<sup>277</sup>

Medeiros et al, writing for Osler, write of the GMBs "[t]hese amendments effectively mandate regional co-operation for the Province's two largest metropolitan areas. Much of how this will be administered will be set out in a future regulation, but if what has occurred in Edmonton is any indication of what is to come, there will likely be a role for a growth management board to approve statutory plans as well as to manage disputes between municipalities."<sup>278</sup>

Medeiros et al further note of the GMBs: "A greater emphasis on regional planning and inter-municipal co-operation in these proposed amendments is notable. [... referencing also ALSA] What is less certain is whether these new statutory tools will truly encourage municipalities to work together to achieve regional goals, or whether municipalities will compete with one another for development at the fringes."<sup>279</sup>

#### 4.5.2 Calgary

Calgary's governance of biodiversity consists of the MDP, policy, and strategic planning.

#### *Calgary Municipal Development Plan*

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<sup>274</sup> Stewart, *supra* note 239

<sup>275</sup> *Ibid* at 9

<sup>276</sup> *Ibid* at 19-20

<sup>277</sup> *Ibid* at 19

<sup>278</sup> Nelson Medeiros, Tamara Prince, and Robert Housman, "A stronger and more modern municipal government: Coming soon to your nearest Alberta municipality" (17 May 2017), online: Osler <  
<https://www.osler.com/en/resources/governance/2017/a-stronger-and-more-modern-municipal-government-c> >

<sup>279</sup> *Ibid*

The Calgary Municipal Development Plan<sup>280</sup> is the City's key document for directing land use, growth patterns and infrastructure in Calgary.<sup>281</sup> The MDP provides a vision for Calgary's growth, and a 60-year strategy, supported by a 30-year plan. It builds on previous plans relating to sustainability.<sup>282</sup> The MDP was adopted by bylaw in accordance with section 632 of the *MGA*,<sup>283</sup> the provincial LUF & SSRP, as well as in alignment with aspirations of the CRP and the policies provided in the draft Calgary Metropolitan Plan [CMP]. "Supporting the growth directions of the CMP is a key policy in the MDP. The City will ensure that the MDP is reviewed regularly and remains current with the CMP."<sup>284</sup>

The MDP addresses biodiversity in section 2.6.4, "Ecological Networks," with the following policies:

- l. Monitor and manage invasive species that pose a threat to biodiversity and undermine an area's ability to protect water resources.
- m. Manage natural areas and open spaces primarily to conserve and promote native biodiversity
- n. Ensure the systematic conservation of land and water to reduce habitat fragmentation and ensure wildlife and fisheries connectivity.
- o. Re-establish open space connections, where feasible, to link important habitat areas within the city and region.<sup>285</sup>

Section 2.6.4's additional policies contemplate habitat and connectivity, and are headed under "ecological protection," "connecting nature," "regional partnerships," "protecting aquatic and riparian habitats," "river valleys and crossings," and "urban forestry."<sup>286</sup> The MDP also includes provisions regarding environmental reserves,<sup>287</sup> "greening the city,"<sup>288</sup> land,<sup>289</sup> and water.<sup>290</sup> The MDP also "addresses future land uses, services and transportation systems within the city. It aims to balance land use, infrastructure servicing and environmental objectives."<sup>291</sup>

### ***City of Calgary Council's Biodiversity Policy and Strategic Plan***

Calgary's Biodiversity Policy<sup>292</sup> provides the five steps required to fulfil the Durban Commitment to Biodiversity, which Calgary signed, "as a demonstration of Calgary's continuing commitment to conserve urban biodiversity and to integrate biodiversity considerations into governance and planning."<sup>293</sup>

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<sup>280</sup> Calgary MDP, *supra* note 16

<sup>281</sup> *Our BiodiverCity*, *supra* note 12 at 9

<sup>282</sup> Calgary MDP, *supra* note 16 at 1-2, listing the Go Plan 1995, the MDP and CTP, and The Calgary Plan 1998

<sup>283</sup> *Ibid* at 1-4

<sup>284</sup> *Ibid* at 1-4

<sup>285</sup> *Ibid*, s.2.4.6 as cited in *Our BiodiverCity*, *supra* note 12 at 9

<sup>286</sup> *Ibid*, section 2.4.6 at 2-46ff

<sup>287</sup> *Ibid*, section 2.3.5 at 2-26

<sup>288</sup> *Ibid*, section Section 2.6 at 2.39

<sup>289</sup> *Ibid*, section 2.6.2 at 2-42

<sup>290</sup> Calgary MDP, *supra* note 16 section 2.6.3 at 2-43

<sup>291</sup> *Our BiodiverCity*, *supra* note 12 at 16

<sup>292</sup> Calgary Biodiversity Policy, *supra* note 26

<sup>293</sup> *Ibid* at Background



The Council Policy includes the following vision for biodiversity:

Calgarians value our city's diversity and richness in wildlife, vegetation and landscapes; The City of Calgary and citizens work to integrate our actions and the built environment with an ecological network that is healthy, connected and well managed (p.66).

The Council Policy includes the following biodiversity principles: ecological literacy, ecological resilience, collaboration, and integration,<sup>294</sup> and sets commitments to complement each principle, and resulting procedures.<sup>295</sup> The vision, principles, commitments, and procedures are reproduced in the *Our BiodiverCity* strategic plan.<sup>296</sup>

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<sup>294</sup> *Ibid*

<sup>295</sup> *Ibid*

<sup>296</sup> *Our BiodiverCity*, *supra* note 12

They are reproduced in the chart, below, for convenience:

Calgary's Biodiversity Policy <sup>297</sup> - Policy	
<b>4. Vision for biodiversity:</b> 4.1 Calgarians value their city's diversity and richness in wildlife, vegetation and landscapes; The City of Calgary and citizens work to integrate their actions and the built environment with an ecological network that is healthy, connected and well managed.	
Principle	Commitments
<b>5.1 Ecological literacy:</b> The City of Calgary supports the conservation and appreciation of biodiversity by cultivating knowledge and understanding about ecological processes, personal stewardship actions and Calgary's natural heritage.	<b>6.1 Ecological literacy:</b> a) Develop volunteer initiatives and education programs to support environmental stewardship and biodiversity conservation in collaboration with schools, communities and citizens. b) Ensure appropriate City of Calgary staff, Council, businesses and communities have access to training and information to advance the goals of biodiversity conservation, through procurement practices; building and site design; open space planning and management, as well as awareness of invasive species, habitat fragmentation and loss, indirect pressures on biodiversity and how they disrupt ecological processes. c) Set objectives and targets for biodiversity conservation across appropriate literacy initiatives. d) Make biodiversity conservation a common element in municipal decision-making.
<b>5.2 Ecological resilience:</b> The City of Calgary plans, protects, manages and restores open space in Calgary for productive, diverse, healthy ecosystems with the capacity to recover from disturbance and adapt to change.	<b>6.2 Ecological resilience:</b> a) Monitor The City's natural areas and water bodies to develop an approach that ensures they are more resilient to disturbance while retaining healthy function, structure, feedback loops and integrity. b) Retain, acquire and maintain large contiguous or connected natural areas, with supportive built environments, providing connections with the greater region. c) Reduce direct pressures on biodiversity through managing appropriate access and use in areas rich in biodiversity and natural heritage. d) Reduce invasive species through identifying threats, implementing measures to prevent their establishment while monitoring and controlling the species where necessary. e) Conserve habitat function by supporting native and non-invasive locally adapted species. f) Maintain significant ecological processes such as fire and flood in appropriate natural areas.
<b>5.3 Collaboration:</b> The City of Calgary works jointly and shares responsibility with individuals and groups to advance biodiversity and ecological resilience locally, regionally and globally.	<b>6.3 Collaboration:</b> a) Recognize the financial, social and environmental cost of removing or modifying natural systems in developing Calgary and include consideration of these costs in municipal decision-making. b) Recognize biodiversity and healthy natural systems as an aspect of good economic development in Calgary. c) Partner with researchers, government and institutions to advance research and innovation in biodiversity conservation. d) Remove knowledge and institutional barriers to protecting biodiversity.
<b>5.4 Integration:</b> The City of Calgary works with communities and businesses to build neighbourhoods that support local biodiversity conservation, healthy ecological processes and provide equitable access to nature.	<b>6.4 Integration:</b> a) Increase habitat diversity in private, public and institutional open space to support ecologically healthy neighbourhoods, aid appropriate access to, and use of nature for citizens. b) Develop a database that integrates land use and biodiversity data to support strategic management of Calgary's ecosystems. c) Plan and manage Calgary's parks and open space as a connected network of habitats and wildlife movement corridors, with the aim of reducing roadway collision threats and related human-urban wildlife conflict. d) Develop infrastructure that mimics and incorporates ecological processes. e) Manage open space to positively respond to both sudden and gradual environmental changes, such as extreme weather events and climate change. f) Preserve rare landscape features and critical habitats within and between neighbourhoods.
<b>PROCEDURE</b> 7. <b>Foster ecological literacy:</b> Increase public understanding of biodiversity and ecological processes to encourage positive actions that support environmental conservation. 8. <b>Improve The City of Calgary's ecological functions:</b> Restore degraded habitats and manage biodiversity to increase the overall health, function and resilience of Calgary's open space and neighbourhoods. 9. <b>Instill biodiversity values across The City of Calgary:</b> Collaborate to establish conservation values and practices into planning, managing and operating The City of Calgary and living in Calgary neighbourhoods. 10. <b>Integrate with wildlife, plants and natural heritage:</b> Conserve lands and waters that are critical in retaining essential local ecosystem function, structure, quality and resilience, while ensuring appropriate access and use.	

Calgary's *Our BiodiverCity: Calgary's 10-year biodiversity strategic plan*<sup>298</sup> was approved by Council in March 2015 in support of and along with the accompanying Biodiversity Policy described above. It describes itself as providing a solution to the challenge of providing a "comprehensive and systematic approach to protecting, developing and managing [Calgary's]

<sup>297</sup> Calgary Biodiversity Policy, *supra* note 26, reproduced verbatim but turned into a chart for this paper

<sup>298</sup> *Our BiodiverCity*, *supra* note 12

natural and built environments for healthy ecological processes in support of biodiversity”, based on principles “for the protection, development and management of Calgary parks and ecosystems in support of biodiversity. *Our BiodiverCity* aims to provide a framework for City staff to foster more resilient, biologically diverse open space and neighbourhoods that support positive outcomes for Calgarians, visitors, wildlife and plant communities.” This built on the City of Calgary Biodiversity Report 2014.<sup>299</sup> *Our BiodiverCity* is a publicly-accessible and reader-friendly 50-page document, and elaborates on many aspects of the issue.

*Our BiodiverCity* notes that Calgary includes natural, semi-natural, and built habitats; and numerous species of wildlife and plants (mammals, birds, reptiles, amphibians, fish, vascular and non-vascular plants;<sup>300</sup> and falls largely within the Parkland and Grassland Natural Regions.<sup>301</sup>

*Our BiodiverCity* sets three targets for 2025 in relation to its three noted common pressures for urban biodiversity and ecological processes:

- Habitat fragmentation: Evaluate landscapes in Calgary and set targets for conservation measures to identify, protect and manage ecological core and corridors.
- Habitat loss: Restore 20 per cent of Calgary’s current open space to support the conservation of biodiversity.
- Invasive species: Identify invasive species in Calgary’s open space and complete strategies for their management.<sup>302</sup>

*Our BiodiverCity* sets out three initiatives, relevant to the LAB partnership: an “Ecological Integrity Index (EII) for Calgary’s natural areas”, a “landscape ecosystems work program”, and a “Mental Models Analysis of citizen engagement and education in biodiversity” (in collaboration with the University of Calgary).<sup>303</sup>

### ***Calgary’s additional tools:***

There are numerous factors involved in Calgary’s urban biodiversity experience.

Calgary’s *Environmental Policy* establishes overarching commitment to environmental sustainability.<sup>304</sup>

Calgary has a BiodiverCity Advisory Committee mandated to “provid[e] Council and Administration with strategic advice on matters affecting urban biodiversity in the City of Calgary

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<sup>299</sup> While a detailed overview of the history of legislation and policy on urban biodiversity is outside the scope of this paper, in Calgary it includes policies and guidelines from the 19<sup>th</sup> century to the 1970s and 1980s to the 1994 *Natural Area Management Plan*, contemporary to the *River Valleys Plan*, *Nose Hill Park Master Plan*, and *Calgary Urban Park Master Plan*; then the Plan It Calgary process of 2009, resulting in the *Municipal Development Plan* and *Calgary Transportation Plan* (see *Our BiodiverCity* at 16)

<sup>300</sup> *Our BiodiverCity*, *supra* note 12 at 1

<sup>301</sup> *Ibid*

<sup>302</sup> *Ibid* at 31, reproduced verbatim

<sup>303</sup> *Ibid* at 34-37

<sup>304</sup> City of Calgary, *The City of Calgary’s Environmental Policy*, UEP001, Effective 1992, amended in 2001, 2007, and 2012 June 11 (Council Policy), online: < <http://www.calgary.ca/CA/city-clerks/Documents/Council-policy-library/uep001-The-City-of-Calgarys-Environmental-Policy.pdf> >

[and] advanc[e] the commitments and procedures identified within Our BiodiverCity [...] and the Durban Commitment [...].”<sup>305</sup>

Angie Arrau from Calgary Parks advised the Calgary Institute for the Humanities 2016 Forum that Urban Conservation was in 2016 “currently developing an Urban Wildlife Strategy,” regarding wild but not domestic agricultural animals, expected to be complete by the end of 2016.<sup>306</sup> It does not appear this strategy has been completed at the time of writing this paper.

Calgary lists the following “statutory and non-statutory policies and guidelines that collectively guide [Calgary with respect to] protection of biodiversity”:<sup>307</sup>

- Environmentally Significant Areas of the Calgary Region (1983)
- Calgary River Valleys Plan (1984)
- Natural Area Management Plan (1994)
- Urban Park Master Plan (1994)
- Integrated Pest Management (1998)
- Open Space Plan (2003)
- Calgary Wetland Conservation Plan (2004)<sup>308</sup>
- Parks Urban Forest Strategic Plan (2017)
- Environmental Reserve Setback Guidelines (2007)
- Parks Water Management Strategic Plan (2007)
- Our BiodiverCity – Strategic Plan (2015)
- Municipal Development Plan (MDP)

Further, Calgary lists the following current biodiversity projects and initiatives: “targeted grazing: using goats for weed control”, “elimination of invasive species”, “naturalization initiative” regarding native plants in parks, and “invasive plant prevention and management.”<sup>309</sup> Finally, Angie Arrau from Calgary Parks also referenced the Calgary Eats!<sup>310</sup> 2012 document, which “reference[s] urban agricultural practices for edible plants and animals.”<sup>311</sup>

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<sup>305</sup> Calgary, “BiodiverCity Advisory Committee”, online: Calgary Boards, Commissions & Committees <<http://bcconline.calgary.ca/publish/bcc.aspx?id=207> >

<sup>306</sup> Angie (Maria Angelica) Arrau, BSc, Parks Ecologist, Conservation Policy, “Calgary Parks, Urban Conservation, City of Animals”, online: Calgary Institute for the Humanities 2016 Forum Community Response <<https://arts.ucalgary.ca/cih/community-response/calgary-parks-urban-conservation-city-calgary> >

<sup>307</sup> Calgary Parks, “Calgary’s tools for conservation”, online: City of Calgary Parks Planning and Operations <<http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Conservation-tools.aspx> >

<sup>308</sup> City of Calgary, *Wetland Conservation Plan* (2004), online: <<http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Protecting-Calgarys-wetlands.aspx> >

<sup>309</sup> Calgary Parks, “Calgary’s Biodiversity”, online: City of Calgary Parks Planning and Operations <<http://www.calgary.ca/CSPS/Parks/Pages/Planning-and-Operations/Biodiversity.aspx> >

<sup>310</sup> City of Calgary, *Calgary Eats!: A Food System Assessment and Action Plan for Calgary* (29 May 2012), online:<<https://www.calgary.ca/CA/cmo/Documents/CalgaryEATS!%20SUMMARY%20Food%20System%20Assessment%20%20Action%20Plan%20for%20Calgary%20May2012.pdf?noredirect=1> >

<sup>311</sup> *Ibid*

### 4.5.3 Edmonton

#### *The Ways We Grow and Green*

Edmonton's MDP is called *The Way We Grow*.<sup>312</sup> *The Way We Grow* was adopted by Bylaw 15100 on May 26, 2010.

Under section 7.0, Natural Environment, the *Way We Grow* states, "Edmonton protects, preserves and enhances its natural environment by maintaining the integrity and interconnectivity of its natural areas, river valley, water resources, parks and open spaces, recognizing that these elements form a functioning ecological network within the Capital Region."<sup>313</sup> The chapter refers to "both public and private natural areas and open spaces."<sup>314</sup> *The Way We Grow* supports the *Natural Connections Strategic Plan* and contains policies to support corporate strategic objectives to "protect, preserve and enhance a system of conserved natural areas within a functioning and interconnected ecological network,"<sup>315</sup> and to "restore ecologically degraded and/or damaged ecological systems and linkages to protect, expand and enhance biodiversity."<sup>316</sup> It further contains policies to protect and manage wetlands, the North Saskatchewan River Valley and Ravine System, and parks and open space, as well as water and air.<sup>317</sup>

Another municipal document in Edmonton is *The Way We Green*<sup>318</sup> is Edmonton's 30-year environmental strategic plan with emphasis on resilience and sustainability.<sup>319</sup> It is aligned with *The Way We Grow* and was approved by Council but is not a product of statute in the manner of an MDP. *The Way We Green* sets twelve long-term goals, including four relating to healthy ecosystems with respect to land, water, and air:<sup>320</sup>

#### *Policy and Planning*

Edmonton's biodiversity strategy is governed by the *Natural Connections Integrated Conservation Plan*,<sup>321</sup> which supports Edmonton's *Natural Area Systems Policy C531*,<sup>322</sup> and "is Edmonton's plan for the protection, management and restoration of local natural areas and biodiversity, and the engagement of the community in that effort.

<sup>312</sup> Edmonton, *The Way We Grow: Municipal Development Plan*, Bylaw 15100 (26 May 2010), online: < [https://www.edmonton.ca/city\\_government/documents/PDF/MDP\\_Bylaw\\_15100.pdf](https://www.edmonton.ca/city_government/documents/PDF/MDP_Bylaw_15100.pdf) > [The Way We Grow]

<sup>313</sup> *Ibid* at 61

<sup>314</sup> *Ibid* at 62

<sup>315</sup> *Ibid* 7.1.1, at 63

<sup>316</sup> *Ibid* 7.1.2, at 64

<sup>317</sup> *Ibid* at 65-71

<sup>318</sup> Edmonton, *The Way We Green: The City of Edmonton's Environmental Strategic Plan* (July 2011), online: < [https://www.edmonton.ca/city\\_government/documents/PDF/TheWayWeGreen-approved.pdf](https://www.edmonton.ca/city_government/documents/PDF/TheWayWeGreen-approved.pdf) >

<sup>319</sup> Edmonton, "The Way We Green: Environmental Strategic Plan", online: < [https://www.edmonton.ca/city\\_government/city\\_vision\\_and\\_strategic\\_plan/the-way-we-green.aspx](https://www.edmonton.ca/city_government/city_vision_and_strategic_plan/the-way-we-green.aspx) >

<sup>320</sup> *The Way We Green*, *supra* note 171 at 5

<sup>321</sup> Edmonton, *Natural Connections: City of Edmonton Integrated Natural Areas Conservation Plan* (Edmonton: 2007), online: City of Edmonton < [https://www.edmonton.ca/city\\_government/documents/PDF/Natural\\_Connections\\_-\\_Strategic\\_Plan\\_JUNE\\_09.pdf](https://www.edmonton.ca/city_government/documents/PDF/Natural_Connections_-_Strategic_Plan_JUNE_09.pdf) > [Natural Connections Conservation Plan]

<sup>322</sup> Natural Area Systems, City of Edmonton Policy C531 (adopted 17 July 2007), online: City of Edmonton < [https://www.edmonton.ca/city\\_government/documents/PoliciesDirectives/C531.pdf](https://www.edmonton.ca/city_government/documents/PoliciesDirectives/C531.pdf) > [Natural Area Systems Policy]

The plan applies an outcome-based, ecological network approach to the conservation of Edmonton's natural areas systems. It includes three components: a Strategic Plan, a Biodiversity Action Plan and a Biodiversity Report.”<sup>323</sup>

The *Natural Connections Strategic Plan* includes “guiding principles, system outcomes, strategic directions and strategies.”<sup>324</sup> It takes an “outcome-based system approach, and ecological network approach to conservation planning” supported by corresponding municipal policy.<sup>325</sup> It refers to Edmonton’s *Natural Area Systems Policy C531*:

[...] To safeguard our natural capital and the associated ecological services, the City of Edmonton is committed to conserving, protecting, and restoring our natural uplands, wetlands, water bodies, and riparian areas, within an integrated and connected system of natural areas throughout the city. These areas provide essential habitat for plants and animals, and maintain a high quality of life for current and future citizens by providing critical ecological services, as well as, opportunities for education, research, appreciative forms of recreation, and aesthetic and spiritual inspiration. The City of Edmonton will balance ecological principles with economic and social considerations in its decision-making and demonstrate that it is done so [...] <sup>326</sup>

The *Natural Connections Strategic Plan*’s goals are to secure a functioning ecological network, manage Edmonton’s ecological network, and engage Edmontonians.<sup>327</sup> Its system outcomes, supported by indicators identified in the strategic plan, are:

1. The protection of Edmonton’s existing natural areas has been maximized (all possibilities explored and every opportunity taken), and restoration of additional lost, degraded or fragmented areas is increasing.
2. Connectivity within Edmonton’s ecological network is increasing.
3. The quality of managed natural areas is increasing due to effective management.
4. The community and Administration are increasingly knowledgeable about the value of natural areas and actively involved in their stewardship.
5. Conservation of Edmonton’s natural areas is increasingly achieved through partnerships.

Its strategic directions and strategies are as follows:

1. Expand Edmonton’s ecological network through securement and restoration
2. Increase the City’s Capacity for Conservation Planning
3. Increase Capacity for the Management of Natural Areas
4. Build a Well-Connected Network of Conservation Partners

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<sup>323</sup> *Ibid*

<sup>324</sup> Edmonton, “Our Strategy for Biodiversity Protection,” online: City of Edmonton < [https://www.edmonton.ca/city\\_government/environmental\\_stewardship/strategy-biodiversity-protection.aspx](https://www.edmonton.ca/city_government/environmental_stewardship/strategy-biodiversity-protection.aspx) >

<sup>325</sup> Natural Connections Conservation Plan, *supra* note 324 at 15

<sup>326</sup> Natural Area Systems Policy, *supra* note 325

<sup>327</sup> Edmonton, *Natural Connections Strategic Plan* (2007), online: City of Edmonton < [https://www.edmonton.ca/city\\_government/documents/PDF/Natural\\_Connections\\_-\\_Strategic\\_Plan\\_JUNE\\_09.pdf](https://www.edmonton.ca/city_government/documents/PDF/Natural_Connections_-_Strategic_Plan_JUNE_09.pdf) > at 30

5. Support a System of Shared Conservation Education
6. Enhance Edmonton's Culture of Ecological Innovation and Excellence
7. Increase the Accessibility and Integration of Information.<sup>328</sup>

Edmonton's *Biodiversity Action Plan* [BAP]<sup>329</sup> "outlines roles, responsibilities, timelines and performance indicators."<sup>330</sup> Its vision is "a system of conserved natural areas, ecologically and effectively managed, connecting the river valley with tableland natural areas, restored green spaces and regional natural areas, and recognized and supported by the community of Edmonton as a valued asset."<sup>331</sup> It references the vision and goals of the *Natural Connections Strategic Plan*. The 2009 BAP has a 10-year focus.

Edmonton's *Biodiversity Report* "includes information about Edmonton's conservation governance system, and an inventory of City and community biodiversity initiatives."<sup>332</sup> This document references the LAB project, and covers four themes, namely ecology, governance, integration, and participation.<sup>333</sup>

Edmonton has also adopted the *Open Space Policy*, which, "along with the Breathe Strategy, recognizes Edmonton's green network as a living system of interconnected public parks and open spaces, which deliver a broad range of services and community benefits."<sup>334</sup> "Breathe: Edmonton's Green Network Strategy"<sup>335</sup> is a "transformative strategy to make sure that as the city grows, each neighbourhood will be supported by a network of open space for the next 30 years. The main goal of the Green Network Strategy is to plan and sustain a healthy city by encouraging connection and integration of open space at the site, neighbourhood, city and regional levels. [...] The strategy will guide future planning to ensure all neighbourhoods are supported by high-quality, accessible, connected open spaces."<sup>336</sup> "Breathe" contains three overarching themes: ecology, wellness, and celebration.

Edmonton's ecological network includes the North Saskatchewan River Valley corridor, large natural (core) areas, including Whitemud Ravine and Big Island, connectivity for species among core areas, as well as natural areas throughout the city that function as habitat or connectivity.<sup>337</sup> *Natural Connections Strategic Plan* identifies eight planning areas, each including at least one biodiversity core area: Big Lake, Whitemud/Blackmud Creeks, Upper North Saskatchewan River Valley, Central North Saskatchewan River Valley, Lower North Saskatchewan River Valley, Horsehills Creek, Mill Creek, and Southeast Edmonton Moraine.<sup>338</sup>

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<sup>328</sup> *Ibid* at 32ff

<sup>329</sup> Edmonton, *Natural Connections: Biodiversity Action Plan* (2009), online: City of Edmonton < [https://www.edmonton.ca/city\\_government/documents/PDF/Edmonton\\_Biodiversity\\_Action\\_Plan\\_Final.PDF](https://www.edmonton.ca/city_government/documents/PDF/Edmonton_Biodiversity_Action_Plan_Final.PDF) >

<sup>330</sup> Edmonton Strategy for Biodiversity Protection, *supra* note 327

<sup>331</sup> Biodiversity Action Plan, *supra* note 332 at 3

<sup>332</sup> Edmonton Strategy for Biodiversity Protection, *supra* note 327

<sup>333</sup> Edmonton Biodiversity Report, *supra* note 28 at 4

<sup>334</sup> Edmonton, *Open Space Policy*, City of Edmonton Policy C594 (adopted 29 August 2017), online: City of Edmonton < [https://www.edmonton.ca/city\\_government/documents/PoliciesDirectives/C594.pdf](https://www.edmonton.ca/city_government/documents/PoliciesDirectives/C594.pdf) >

<sup>335</sup> Edmonton, *Breathe: Edmonton's Green Network Strategy* (strategy under Edmonton's Open Space policy C594) (August 2017), online: < [https://www.edmonton.ca/city\\_government/initiatives\\_innovation/breathe.aspx](https://www.edmonton.ca/city_government/initiatives_innovation/breathe.aspx) >

<sup>336</sup> *Ibid*

<sup>337</sup> Edmonton Strategy for Biodiversity Protection, *supra* note 327

<sup>338</sup> *Natural Connections Strategic Plan*, *supra* note 330 at 37

The *Biodiversity Action Plan* identifies different habitats: “wetlands, forest, riparian/riverine areas and some remnant areas of grassland, peatland and sand dune ecosystems,”<sup>339</sup> supporting “considerable biodiversity, including over 500 plant species, 50 species of mammal, over 150 bird species, five species of amphibian, two species of reptiles, and over 30 fish species [as well as] two threatened species, the Peregrine Falcon and the Lake Sturgeon [and] a diversity of mosses, lichens, mushrooms, and insects.”<sup>340</sup> “Ten percent of Edmonton’s land base consists of natural areas,” divided into river valley and tablelands.<sup>341</sup> The region is “located in the Parkland Natural Region of Alberta, the transition zone between the southern grasslands and northern boreal forest.”<sup>342</sup>

Edmonton’s biodiversity management includes the “related document” *Wildlife Passage Engineering Design Guidelines*<sup>343</sup> prepared by Stantec. This educational document is not formally adopted into policy or law but received an Alberta Emerald Foundation award in 2015 as its “eight-year project has resulted in the design and/or construction of 27 wildlife passage structures, and a 51% reduction in wildlife collisions.”<sup>344</sup>

#### 4.5.4 Municipal Regions

The Calgary and Edmonton regions are involved in regional municipal planning under the MGA as well as the regional LUF under ALSA. As noted, one of the priorities in the LUF, along with the creation of ALSA and the creation of the LARP and SSRP, was the creation of metropolitan plans for the Calgary and capital regions.<sup>345</sup> To date, Calgary’s has been voluntary and Edmonton’s mandatory. Recent changes to the MGA are making them both mandatory, as discussed above in 4.5.1.

##### *Calgary Region*

The Calgary Regional Partnership was a “voluntary association of municipalities in the Calgary region [that] collaborate[s] to address growth in the region, and its impacts”<sup>346</sup> constituted in evolving form since 1999. The Calgary Regional Partnership wound down February 28, 2018 as a result of the creation of the Calgary Metropolitan Region Board. The CRP described its legal status as:

a voluntary association of municipalities in the Calgary region that has come together to plan for long-term growth in the region and address issues of a regional interest. The CRP is not another level of government. Local jurisdictions must align their statutory plans to the overarching provincial legislation and the CMP. However, the Partnership does not have any jurisdiction on local land use decisions (e.g. zoning, development, subdivision

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<sup>339</sup> Biodiversity Action Plan, *supra* note 332 at 6

<sup>340</sup> *Ibid* at 6

<sup>341</sup> *Ibid* at 7

<sup>342</sup> The Way We Grow, *supra* note 315 at 62

<sup>343</sup> Stantec Consulting Ltd., prepared for the City of Edmonton Office of Natural Areas, *Wildlife Passage Engineering Design Guidelines* (Edmonton: June 2010), online: City of Edmonton < [https://www.edmonton.ca/city\\_government/documents/WPEDG\\_FINAL\\_Aug\\_2010.pdf](https://www.edmonton.ca/city_government/documents/WPEDG_FINAL_Aug_2010.pdf) >

<sup>344</sup> Alberta Emerald Foundation, “Designing for Wildlife Passage in an Increasingly Fragmented World”, online: [https://emerald.foundation.ca/aef\\_awards/designing-for-wildlife-passage-in-an-increasingly-fragmented-world/](https://emerald.foundation.ca/aef_awards/designing-for-wildlife-passage-in-an-increasingly-fragmented-world/) >

<sup>345</sup> LUF, *supra* note 6

<sup>346</sup> Calgary Regional partnership, online: < <http://calgaryregion.ca/> >



authority); to approve municipal or intermunicipal plans; or to undertake annexations or inter-municipal negotiations.<sup>347</sup>

Its CMP added:

The municipal members of the CRP have committed to the CMP by aligning their local plans. Regional Context Statements will be included in CRP members' Municipal Development Plans (MDPs) to set out the relationship between the local MDPs and the CMP. Regional Context Statements are policy tools that enable municipalities to develop locally appropriate approaches to aligning with the CMP.<sup>348</sup>

The new Regulation coming into force January 1, 2018 affects the CRP and the CMP. Whereas there was a voluntary plan created by a voluntary association of parties, there must now be a prescribed plan produced by a prescribed group. The Regulation requires a prescribed Growth plan to be submitted by January 1, 2021.

Actions of the existing CRP and CMP with respect to the CMRB and Growth plan is to be seen. The result may be quite similar, but much is unknown. One would expect the new Calgary growth plan to look more like the ERMP, which is much longer and differently structured and presented. The CRP and CMP were thorough and well presented, and the regulatory changes may well result in tension between centralized control and opportunities for more powerful growth.

One known element is that the parties to the regional plan will be different, changing the boundaries of the geographic region itself: both the CRP<sup>349</sup> and CMRB<sup>350</sup> include Airdrie, Calgary, Chestermere, Cochrane, Okotoks, and Strathmore. The CRP (but not the CMRB) also includes Banff, Canmore, Irricana, Nanton, Redwood Meadows, and Turner Valley. The CMRB (but not the CRP) adds High River, Rocky View County, Municipal District of Foothills, and a portion of Wheatland County. Membership of both GMBs is "made up of the core municipality, all rural municipalities that are adjacent to the core, and all urban municipalities with more than 5,000 citizens."<sup>351</sup> This difference is likely to affect the focus and content of the resultant plan.

The CRP region map is reproduced below:

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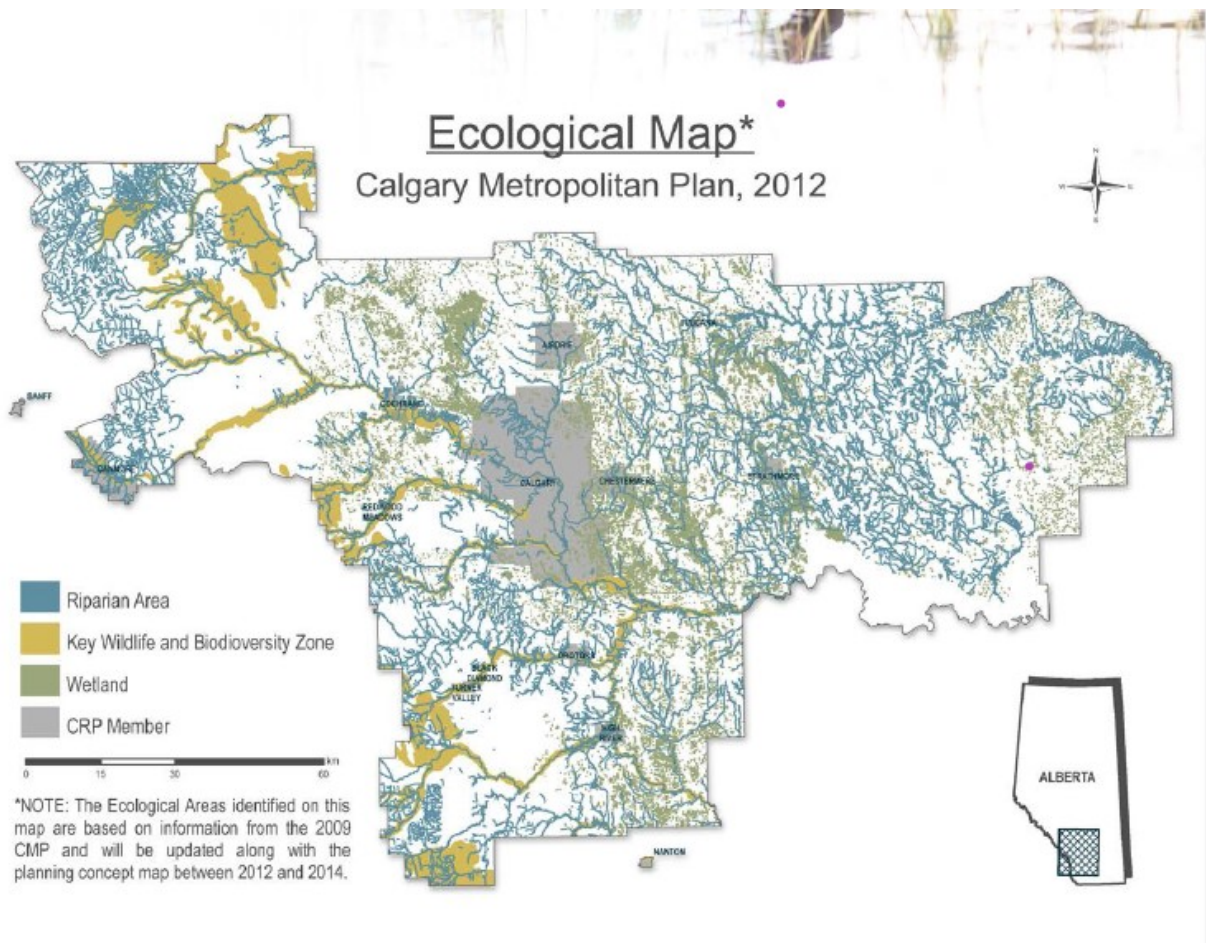
<sup>347</sup> CMP, *supra* note 15 at 10

<sup>348</sup> *Ibid* at 0

<sup>349</sup> *Ibid* at 7, updated by website

<sup>350</sup> *Calgary Metropolitan Region Board Regulation*, Alta Reg 190/2017, Schedule

<sup>351</sup> Alberta Municipal Government Act Review, Regulations, online: <<https://mgareview.alberta.ca/whats-changing/regulations/>>



### ***Calgary Metropolitan Plan (2014)***

The CRP produced the Calgary Metropolitan Plan.<sup>352</sup> The CMP was the “blueprint for accommodating growth over the next 60 years,”<sup>353</sup> expecting the region “to grow to three million people by the year 2076.”<sup>354</sup> The CMP included the following principles, “represent[ing] the foundation of what our region needs to be successful and sustainable for decades to come – they are what we live by and what cannot be compromised if we are to succeed.”<sup>355</sup>

- 1. Protecting the natural environment and watershed
- 2. Fostering the region’s economic vitality
- 3. Accommodating growth in more compact settlement patterns
- 4. Integrating efficient regional infrastructure systems
- 5. Supported through a regional governance approach<sup>356</sup>

<sup>352</sup> CMP, *supra* note 15

<sup>353</sup> *Ibid* at 10

<sup>354</sup> *Ibid* at 10

<sup>355</sup> *Ibid* at 3

<sup>356</sup> *Ibid* at 3

The CMP included strategies under Principle 1: Protecting the natural environment and watershed to: protect the watersheds,<sup>357</sup> enhance ecological infrastructure,<sup>358</sup> address climate change,<sup>359</sup> and work together for change.<sup>360</sup>

The CMP also included a strategy to “develop compact settlements”<sup>361</sup> and a strategy to “collaborate for a sustainable region.”<sup>362</sup> Which includes consideration of the “triple bottom line: [...] ensur[ing] the integrated and balanced consideration of all social, cultural, economic and healthy environments in developing regional, local and intermunicipal plans and programs.”<sup>363</sup>

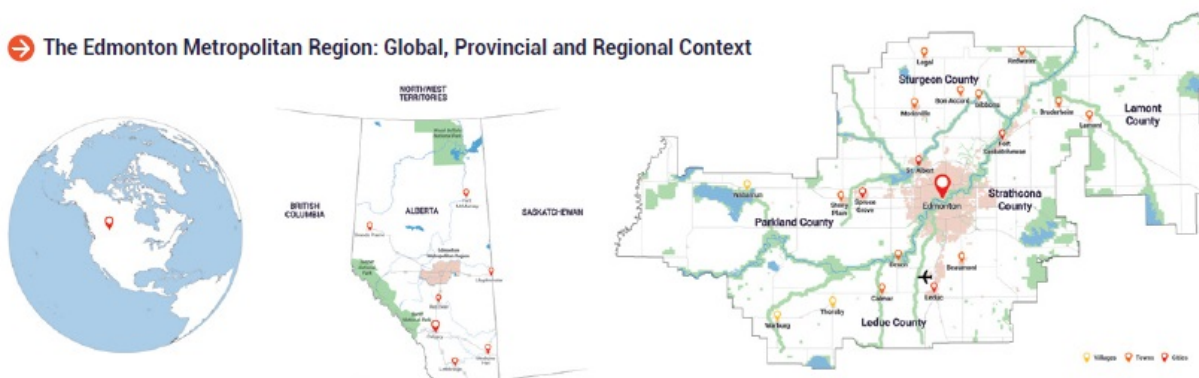
Implementation of the CMP’s goals was to result in a “70 per cent reduction in land use for urban development in the future”<sup>364</sup> along with a decrease in infrastructure costs.<sup>365</sup>

### **Edmonton Region**

The Edmonton Metropolitan Region Board is in place as required by the new MGA Regulation. The EMRB is successor to the Capital Region Board, which was continued with the new name October 26, 2017 in accordance with legislative changes.<sup>366</sup>

Participating municipalities are: Edmonton, Beaumont, Devon, Fort Saskatchewan, Leduc, Leduc County, Morinville, Parkland County, St Albert, Spruce Grove, Stony Plain, Strathcona County, Sturgeon County.<sup>367</sup>

The EMRB region map is reproduced below:<sup>368</sup>



<sup>357</sup> *Ibid* at 14, Strategy 1.a

<sup>358</sup> *Ibid* at 14, Strategy 1.b

<sup>359</sup> *Ibid* at 14, Strategy 1.c

<sup>360</sup> *Ibid* at 14, Strategy 1.d

<sup>361</sup> *Ibid* at 28, Strategy 3

<sup>362</sup> *Ibid* at 46, Strategy 5

<sup>363</sup> *Ibid*

<sup>364</sup> *Ibid* at 11

<sup>365</sup> *Ibid*

<sup>366</sup> The *Edmonton Metropolitan Region Board Regulation*, Alta Reg. 189/2017; Edmonton Metropolitan Board, online: < [www.emrb.ca](http://www.emrb.ca) >

<sup>367</sup> The *Edmonton Metropolitan Region Board Regulation*, Alta Reg. 189/2017 at Schedule

<sup>368</sup> Edmonton Metropolitan Region Board, *Edmonton Metropolitan Region Growth Plan*, online: Edmonton Metropolitan Region Board (Effective October 26, 2017) < <http://emrb.ca/Website/media/PDF/Publications/EMRGP-Interactive.pdf> > [EMRGP] at 3

### ***The Edmonton Metropolitan Region Growth Plan (EMRGP)***

The new Regulation requires an Edmonton growth plan to be created within three years,<sup>369</sup> that being October 2020. The Edmonton Metropolitan Region Growth Plan (EMRGP)<sup>370</sup> as updated in 2016 has been adopted as the statutorily required growth plan.<sup>371</sup>

The EMRGP anticipates the doubling of the population to 2.2 million people by 2044,<sup>372</sup> and:

places an emphasis on responsible growth through minimizing the expansion of the urban footprint, integrating land use and infrastructure decisions, building resilient, adaptable and complete communities, ensuring the Region's transportation systems are interconnected and enable economic prosperity, protecting the environment and encouraging the growth of the agriculture sector.

It is guided by the following principles:

1. Collaborate and coordinate as a Region to manage growth responsibly.
2. Promote global economic competitiveness and regional prosperity.
3. Recognize and celebrate the diversity of communities and promote an excellent quality of life across the Region.
4. Achieve compact growth that optimizes infrastructure investment.
5. Ensure effective regional mobility.
6. Ensure the wise management of prime agricultural resources.
7. Protect natural living systems and environmental assets.<sup>373</sup>

The EMRGP contains six interrelated regional policies, which include matters related to biodiversity, fragmentation and connectivity:<sup>374</sup> These policies are headed under: economic competitiveness and employment, natural living systems, communities and housing, integration of land use and infrastructure, transportation systems, and agriculture. The policy of natural living systems includes the following guiding principles and objectives:

#### **2. NATURAL LIVING SYSTEMS**

Guiding Principle: Protect natural living systems and environmental assets. We will practice wise environmental stewardship and promote the health of the regional ecosystem, watersheds, airsheds, and environmentally sensitive areas.

##### **Objectives**

- 2.1 Conserve and restore natural living systems through an ecological network approach
- 2.2 Protect regional watershed health, water quality and quantity
- 2.3 Plan development to promote clean air, land and water and address climate change impacts

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<sup>369</sup> EMRB Reg, *supra* note 370, s.7

<sup>370</sup> EMRGP, *supra* note 371

<sup>371</sup> Edmonton Metropolitan Regional Board, online: < <http://emrb.ca/about-us/> >

<sup>372</sup> EMRGP, *supra* note 371 at ix

<sup>373</sup> *Ibid* at iv

<sup>374</sup> *Ibid* at xi

## 2.4 Minimize and mitigate the impacts of regional growth on natural living systems<sup>375</sup>

### 5. CRITICAL EXAMINATION

This section will analyze Alberta's legislative framework respecting urban biodiversity, wildlife and ecosystems. It is not possible to complete critical evaluation without establishing criteria for success, where those criteria will likely be dynamic, and dependent on scientific expertise and additional criteria for balancing stakeholder interests. It is further indeterminate how the MGA changes, some of which have not been finalized, or the inchoate LUF BMFs, will apply. It is possible to look at the systems in place and forming in terms of coherence, potential, strengths and weaknesses, and look at critiques and suggestions.

There is an abundance of literature on the scientific dimensions of urban biodiversity,<sup>376</sup> but little on the legal and regulatory side, especially in Alberta.

#### *Challenges & Pressures*

It stands to reason that effective governance of urban biodiversity should meet the challenges and pressures involved.

Aronson et al described "four key challenges," with respect to governance of urban biodiversity, such as would guide research for improved management:

- Public and private green spaces are managed individually
- UGS management decisions are driven by various interacting economic, social, and cultural factors
- Many pervasive management techniques are barriers to biodiversity conservation (e.g. landscaping)

<sup>375</sup> *Ibid* at xi

<sup>376</sup> Local articles include: A Cole Burton et al, "A framework for adaptive monitoring of the cumulative effects of human footprint on biodiversity" in *Environ Monit Assess* 186 (2014) 3605 (ABMI); Brett R Scheffers and Cynthia A Paszkowski, "Amphibian use of urban stormwater wetlands: The role of natural habitat features" in *Landscape and Urban Planning* 113 (2013) 139-140 (UofA); Astrid N Schwalb et al, "Changes in migratory fish and their health, hydrology, and water chemistry in rivers of the Athabasca oil sands region: a review of historical and current data" in *Environ Rev* 23 (2015) 133 (UofL etc); Marie A Tremblay and Colleen St Clair, "Permeability of a heterogenous urban landscape to the movements of forest songbirds" in *Journal of Applied Ecology* 48 (2011) 679 (UofA); RC Rooney et al, "Replacing natural wetlands with stormwater management facilities: Biophysical and perceived social values" in *Water Research* 73 (2015) 17 (UofA etc); Tim Beatley, "City as habitat: planning the nature-connected city" in *Planning*; Chicago 82:9 (Oct 2016) 50 (re Edmonton); Clarisse Thornton and Michael S Quinn, "Risk Perceptions and Attitudes Toward Cougars in the Southern Foothills of Alberta" in *Human Dimensions of Wildlife* 15 (2010) 359 (UofC); Joanna L Coleman and Robert MR Barclay, "Urbanization and the abundance and diversity of Prairie bats" in *Urban Ecosys* 15 (2012) 87 (UofC); Maureen H Murray et al, "Urban Compost Attracts Coyotes, Contains Toxins, and may Promote Disease in Urban-Adapted Wildlife" in *EcoHealth* 13 (2016) 285 (UofA); Maureen H Murray and Colleen Cassidy St Clair, "Predictable Features Attract Urban Coyotes to Residential Yards" in *The Journal of Wildlife Management* 81:4 (2017) 593 (UofA). See also Stepan Wood, "Canada's 'Forgotten Forests': Or, How Ottawa is Failing Local Communities and the World in Peri Urban Forest Protection" in *J Env L & Prac* 14 (2004) 217; Colby J Tanner et al, "Urban ecology: advancing science and society" in *Front Ecol Environ* 12:10 (2014) 574; Olivia Odom Green et al, "Adaptive governance to promote ecosystem services in urban green spaces" in *Urban Ecosys* 19 (2016) 77; Erin C McCance et al, "Importance of urban wildlife management in the United States and Canada" in *Mammal Study* 42 (2017) 1

- UGS support novel plant and animal communities (eg native and non-native plants)<sup>377</sup>

Bulmer et al saw in Vancouver a “lack in policies and legislation regarding urban wildlife specifically.”<sup>378</sup>

*Our BiodiverCity* describes “common challenges in all cities that directly affect biodiversity conservation and ecological processes [as] habitat fragmentation, habitat loss and invasive species.”<sup>379</sup> It lists awareness pressures, budgetary pressures, physical pressures, and legislative pressure, noting:

When there is an absence of rules or a lack of commitment to the judicious and timely application of those rules, it becomes challenging for municipalities, businesses or citizens to protect biodiversity. Legislation can conflict in competing development or land use priorities. There also tends to be numerous stakeholders with varied interests, and the effects of this are compounded by unclear legislation and intent. Lack of rules, lack of clarity, and the presence of conflict, multiple perspectives and varied interpretations can hinder conservation measures. Currently, The City lacks a bylaw that directly addresses protecting or conserving areas for biodiversity. Having a clear bylaw in place could help alleviate the conflicts described above.<sup>380</sup>

### ***Recommendations in General***

Aronson et al, writing generally, pointed to their four identified challenges to guide biodiversity management, and identified the importance of collaboration between groups, including bridging the “ga[p] between science and policy.”<sup>381</sup> Aronson et al, discussing biodiversity in UGS, identified “overarching issues” relating to the range of stakeholders:

Primary overarching issues for biodiversity planning and management are gaps between science and policy, local government access to research findings, and communication of research to stakeholders. To conserve biodiversity in UGS, diverse stakeholders – including ecologists, managers, developers, students, and citizens – should be encouraged to join in collaborative networks to share data, engage in interdisciplinary research, and discuss urban biodiversity management, design, and planning.<sup>382</sup>

Bulmer et al in Vancouver made the following recommendations to address the issue of urban wildlife: Public education, preserving biodiversity by “creating a linked network of natural areas and parks that will serve as viable and safe habitats for existing populations” as in the Metro Vancouver regional growth strategy, by adding specific legislation, and by educating decision-makers.<sup>383</sup>

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<sup>377</sup> Aronson et al, *supra* note 9 at 190-4

<sup>378</sup> Bulmer et al, *supra* note 11

<sup>379</sup> *Our BiodiverCity*, *supra* note 12 at 18

<sup>380</sup> *Our BiodiverCity*, *supra* note 12 at 20

<sup>381</sup> Aronson et al, *supra* note 9 at 195

<sup>382</sup> Aronson et al, *supra* note 9 at 195

<sup>383</sup> Bulmer et al, *supra* note 11

In their conclusions, “[t]hrough the strengthening of human-wildlife interactions and biodiversity ecosystem services as well as implementing new governance practices, it is possible to solve the wicked problem of urban wildlife in Vancouver.”<sup>384</sup>

Hiebert, looking at the Calgary region and considering biodiversity management to be framed by land cover and land-use change, argued for spatial connectivity on a regional scale to be used in regional land use planning found both municipally and regionally under ALSA, in her Master of Environmental Design thesis looking at the Calgary region.<sup>385</sup> Similarly, Lamy, using Calgary as a case study, argued for functional connectivity approaches to combat fragmentation in the city of Calgary in her Master of Environmental Design thesis looking at coyotes in Calgary.<sup>386</sup>

Writing on biodiversity and urban sprawl in the United States in 2002, Ortiz concluded that zoning relaxation was one of several means to protect biodiversity, but<sup>387</sup>

Greater protection can be garnered, however, through the involvement of developers and other individuals willing to make an effort at conservation. Through innovative land development, such as New Urbanism and conservation subdivisions, developers can create areas that reduce further impacts on biodiversity. Individual homeowners, as well as businesses, schools, and community groups, can also contribute to this protection through participation in voluntary stewardship programs. By taking such measures, the human impact in urban and suburban areas can be lessened and the state of biodiversity improved.<sup>388</sup>

Writing for the AWA in 2015, Robinson noted the weaknesses in governing legislation, but wrote, “we can advocate for legislative change if needed but we ultimately must work with the cards we are dealt.”<sup>389</sup> He wrote that a municipal biodiversity plan “relies heavily on public cooperation. Thankfully, there is strong public interest in the plan’s goals.”<sup>390</sup> Robinson quoted Calgary Parks planner Steven Snell as saying “I hope [the biodiversity plan] inspires ‘rewilding’ initiatives to restore a greater ecological function in underused open space, in neighbourhood gardens, in front yards [and] I hope it continues Calgarians’ pride in their parks and city in general.”<sup>391</sup>

Public cooperation in wildlife management has been noted consistently by other commentators, including discussion on coyotes (above), discussion of Bear 148 and the Banff wolves, and by Alberta Fish and Wildlife, who recommend “simple precautions” to avoid conflict, including securing waste, securing pets, removing food sources and not feeding or approaching wildlife, cautious driving, and educating children likewise.<sup>392</sup> Public recognition of and respect for the dimensions of wildness in our cities is key.

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<sup>384</sup> Bulmer et al, *supra* note 11

<sup>385</sup> Hiebert, *supra* note 33 at 7-9 as well as 52ff

<sup>386</sup> Karina Lamy, *Urbanizing the Wild: Urban Coyote Dynamic Functional Connectivity in the City of Calgary, Alberta, and the Development of a Novel Fuzzy Logic Expert Consensus Approach to Ecological Modeling* (MEDes Thesis, University of Calgary Faculty of Graduate Studies Graduate Program in Environmental Design, January 2015) [unpublished], online: < <https://prism.ucalgary.ca/handle/11023/2189> >

<sup>387</sup> Francesca Ortiz, “Biodiversity, the City, and Sprawl” in *Boston University Law Review* 82 (2002) 145

<sup>388</sup> *Ibid* at 194

<sup>389</sup> Robinson, *supra* note 30 at 17

<sup>390</sup> *Ibid* at 19

<sup>391</sup> *Ibid* at 19

<sup>392</sup> Alberta Fish and Wildlife, *supra* note 3

*Our BiodiverCity* describes as an opportunity that “progress towards biodiversity conservation comes from government policy, public literacy and action, grassroots initiatives, business strategies and a multitude of design solutions.”<sup>393</sup> Success requires examining then improving the relationship between human behaviour and ecology.<sup>394</sup> *Our BiodiverCity* emphasises that its implementation is dynamic, stating “[a] principled approach – rather than a goal-based approach – enables us to be dynamic in our actions as we move towards our vision,”<sup>395</sup> and “[t]he implementation plan will necessarily reflect the dynamic nature of ecosystems and a growing city, and will be structured to adapt to those changes as circumstances warrant.”<sup>396</sup> It further notes that implementation involves many partners, including “City business units and departments, [...] specialists, researchers, educators and practitioners [as well as] collaboration across industry sectors and across different scales, [...] work with international organizations [...] and work done by citizens [...] in their gardens and neighbourhood parks, or [...] through environmental stewardship.”

*Our BiodiverCity* sets out a detailed strategic direction, along with its methods, targets, and reporting mechanisms for the City of Calgary.

### ***Legal framework***

Alberta’s legal framework respecting urban biodiversity is pieced together from many sources. As discussed, there are many parties involved in the regulation and management of urban biodiversity in this province, including governmental, non-profit groups, and citizens. Education of the public is a recurring theme. Resources for the different groups, in the form of budget allocation, grants, donations, and/or time, is a component of the continuity of mechanisms in place.

At the same time, management of urban biodiversity is a necessarily dynamic effort. It is difficult to envision static legislation, in light of geographic, seasonal, climate, and social differences, and dynamic changes around the province. Flexibility in the overarching legal framework is not necessarily a negative, provided that framework has the potential to include dynamic and effective response measures. This also requires an informed public and informed decision-makers: education of these parties is key to an inherently dynamic framework itself, as many commentators have noted, bearing in mind that maximizing biodiversity is one of many often-conflicting values in urban planning, and varied stakeholders, including public bodies, private citizens, infrastructure, and industrial stakeholders, will have different interests.

While municipal efforts (particularly in Calgary and Edmonton) have included strong goals relating to biodiversity, the recent initiatives in land use planning, regional municipal planning, and changes in the MGA have potential to strengthen these efforts. It may yet be possible to create the biodiversity conservation bylaw recommended by *Our BiodiverCity*. ALSA mandates consideration of biodiversity in regional planning in general terms (so far), and the MGA is mandating municipal regional planning for Calgary and Edmonton – while the metropolitan plans aren’t mandated to consider biodiversity, those plans are required to comply with ALSA.

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<sup>393</sup> *Our BiodiverCity*, *supra* note 12 at 23

<sup>394</sup> *Ibid* at 23

<sup>395</sup> *Ibid* at 26

<sup>396</sup> *Ibid* at 31



It is still early in the LUF/ALSA process, and early in the amended MGA municipal regional planning process, to make concrete assessments in this regard, and research in future will yield more information. From an analytical perspective, a consistent and coherent overarching framework as provided by the regional planning processes will be helpful in governing and evaluating outcomes. Success of this framework will require interdisciplinary collaboration among legal, scientific, urban planning, environmental design and others. It would be useful to see more guidance in law and policy on balancing conflicting values when biodiversity is concerned: there is an inherently discretionary nature to this framework as there is dynamism in the subject matter, and as under the LUF, measures of discretion will be to some extent appropriate in the circumstances.<sup>397</sup> In this context, it would be a measure of success that the law and policy be capable of responding to discretionary direction – a question without a clear current answer.

## 6. CLOSING

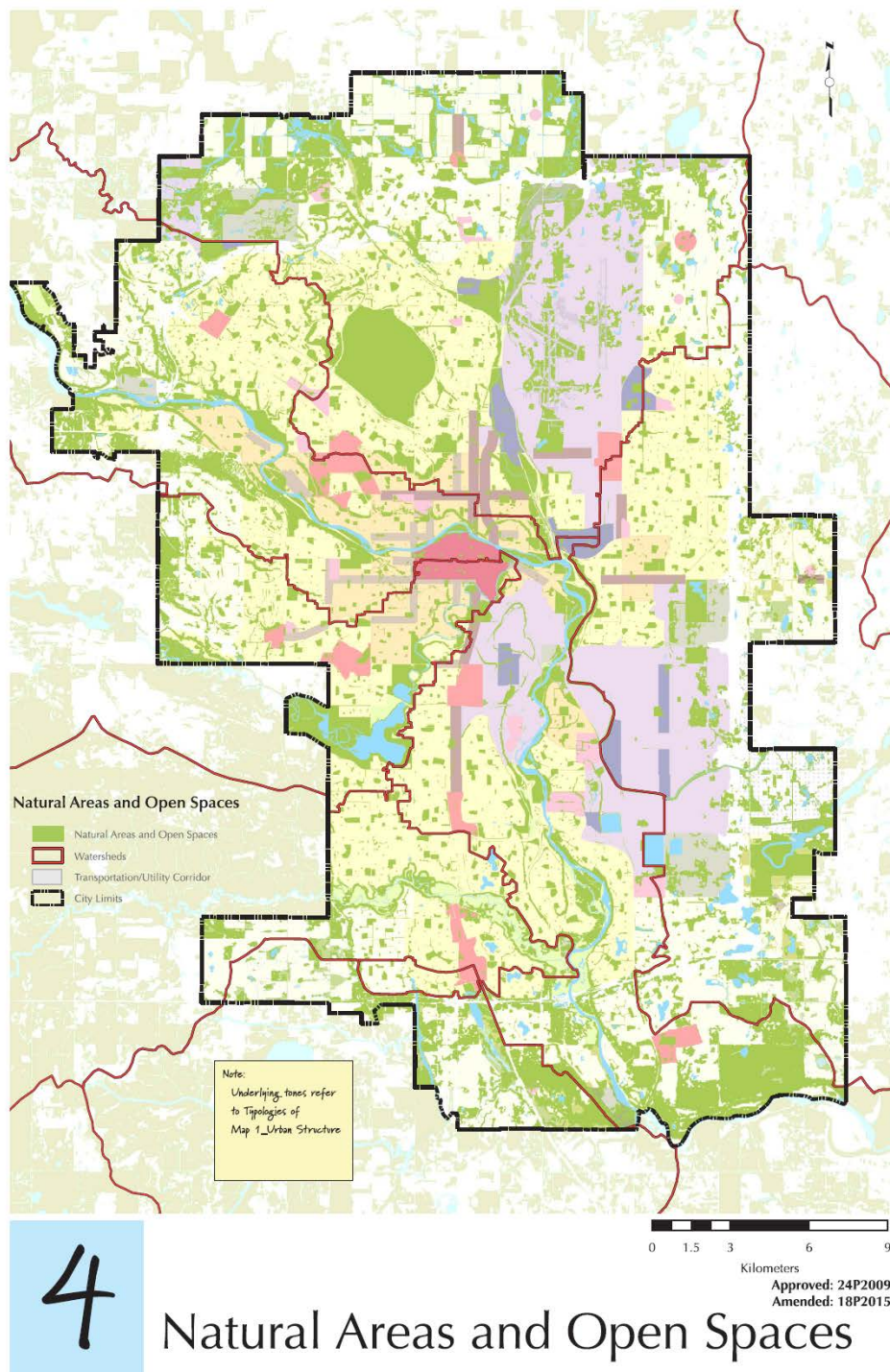
The legislative framework governing urban biodiversity in Alberta is a patchwork of law and policy with international, federal, provincial, and municipal components, including non-governmental parties. The subject is covered mainly but extensively by municipal policy. In the province, an emerging commitment to regional and land-use planning along with biodiversity may have implications for wildlife and habitat management in the future. The LUF's direction of strategic attention to biodiversity will affect its urban context, and the effects of changes to the MGA directing municipal regional planning as well as the role of City Charters are not yet certain; and the combined effect will support structure and consistency in the province. Urban biodiversity remains largely a question of policy, and there is extensive if at times incoherent and forceless policy guidance. It is inherently dynamic and it makes sense that governance be dynamic as well. Ongoing governance demands interdisciplinary collaboration among decision-makers and stakeholders, bridges between policy and science, informed and committed decision-makers and an informed, cooperative public.

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<sup>397</sup> See Jaremko, *supra* note 199

## APPENDICES

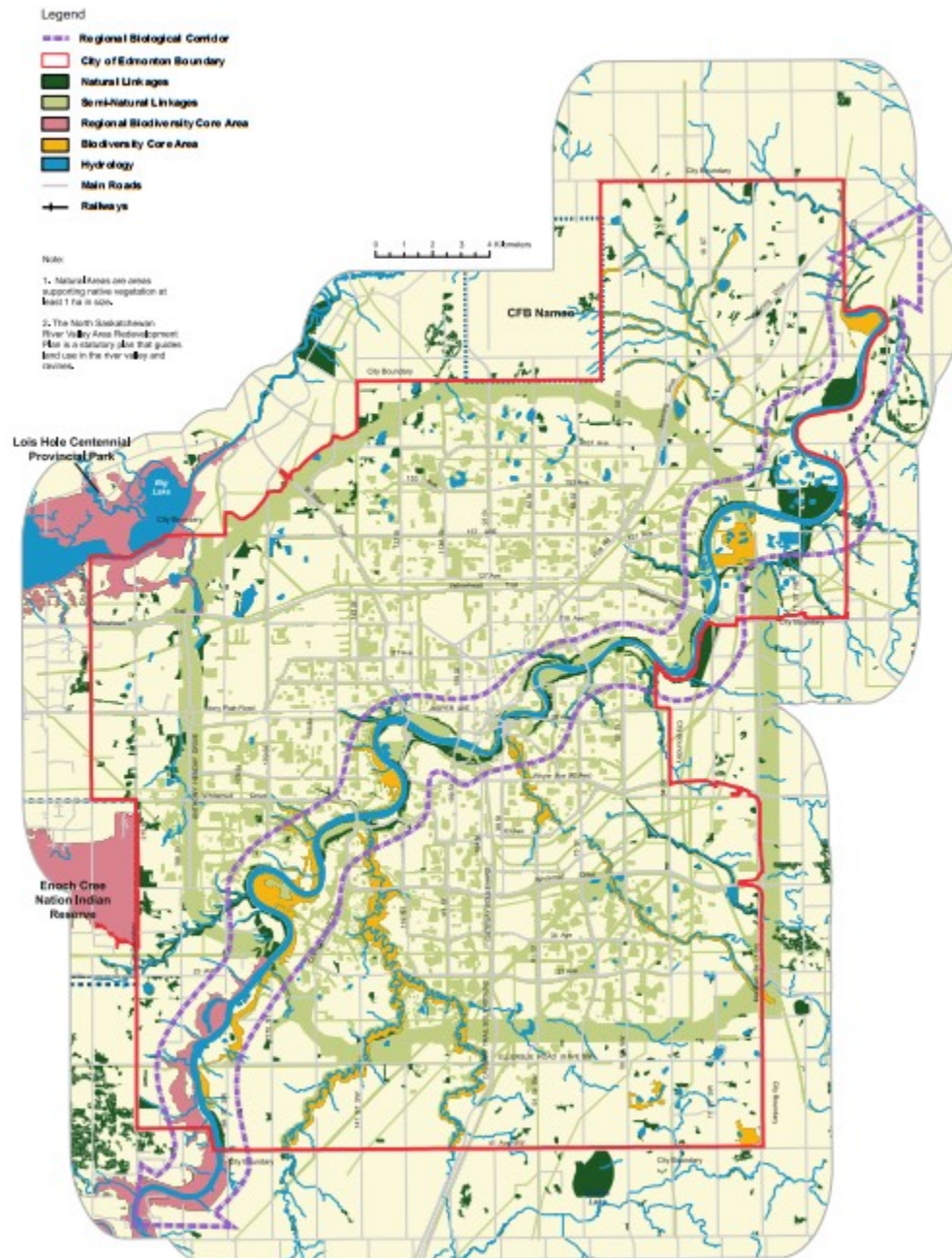
### APPENDIX A: Calgary MDP Map 4 Natural Areas and Open Spaces<sup>398</sup>



<sup>398</sup> MDP (maps separately available online [www.calgary.ca](http://www.calgary.ca))

APPENDIX A continued - Edmonton, Ecological Network Map<sup>399</sup>

## Edmonton's Ecological Network



<sup>399</sup> Edmonton, "Ecological Network Map," online: <  
[https://www.edmonton.ca/city\\_government/documents/PDF/Ecological\\_Network\\_Map.pdf](https://www.edmonton.ca/city_government/documents/PDF/Ecological_Network_Map.pdf) >

**APPENDIX B**      **Table 1.** Key Components of Management of Biodiversity in the South Saskatchewan Region<sup>400</sup>

Governance	Jurisdiction
<b>Acts and Regulations</b>	
<i>Alberta Land Stewardship Act</i>	Alberta/Regional
<i>Canadian Environmental Assessment Act</i>	Canada
<i>Environmental Protection and Enhancement Act</i>	Alberta
<i>Fisheries (Alberta) Act</i> and General Fisheries (Alberta) Regulation	Alberta
<i>Fisheries Act</i>	Canada
<i>Forests Act</i> and Timber Management Regulation	Alberta
<i>Forest and Prairie Protection Act</i>	Alberta
<i>Migratory Birds Convention Act</i>	Canada/International
<i>Protecting Alberta's Environment Act</i>	Alberta
<i>Provincial Parks Act</i>	Alberta
<i>Public Lands Act</i> and Public Lands Administration Regulation	Alberta
<i>Species at Risk Act</i>	Canada
<i>Water Act</i>	Alberta
<i>Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act</i>	Alberta
<i>Wildlife Act</i> and Wildlife Regulation	Alberta
<b>Policies and Strategies</b>	
Accord for the Protection of Species at Risk	National
Alberta's Biodiversity Policy (under development)	Alberta
Alberta Timber Harvest Planning and Operating Ground Rules Framework for Renewal	Alberta
Alberta Wetland Policy	Alberta
Alberta's Strategy for the Management of Species at Risk (2009-2014)	Alberta
Canadian Biodiversity Strategy	National
Fish Conservation and Management Strategy for Alberta	Alberta
Integrated Standards and Guidelines – Enhanced Approval Process	Alberta
Land-use Framework	Alberta/Regional
National Framework for Species at Risk Conservation	National
Alberta's Forest Strategy (under development)	Alberta
Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region	National
Plan for Parks	Alberta
Strategy for the Protection of the Aquatic Environment	Alberta
Water for Life: Alberta's Strategy for Sustainability	Alberta
Weed Control Act	Alberta
<b>Programs</b>	
Aquatic Invasive Species Program	Alberta
Environmental Flows Program	Alberta
Habitat Stewardship Program for Species at Risk	National
Species at Risk Program	Alberta

<sup>400</sup> Draft SSRP BMF at 16-7 (not specific to urban areas)



## APPENDIX B continued

**Table 1: Legislation, Policy and Plans Governing Biodiversity Protection in Edmonton**<sup>401</sup>*(note, this is outdated (2009) but some elements are current, and the table is illustrative)*

LEVEL OF GOVERNMENT	RESPONSIBLE AGENCY	DOCUMENT	TOPIC ADDRESSED
Federal	Environment Canada	Canadian Environmental Assessment Act	Environmental Assessment
		Migratory Birds Convention Act	Wildlife Protection
		Species at Risk Act	Wildlife Protection
	Department of Fisheries & Oceans	Fisheries Act	Wildlife Protection
Provincial	Alberta Environment	Water Act	Wetlands/Water
		Alberta Wildlife Act	Wildlife Protection
		Environmental Protection & Enhancement Act	Environmental Assessment
		Wetland Policy	Wetlands/Water
	Alberta Sustainable Resources Development	Public Lands Act	Land Use Planning / Wetlands / Water
		Alberta Fisheries Act	Wildlife Protection
	Alberta Municipal Affairs	Municipal Government Act	Land Use Planning
		Land Use Policies	Land Use Planning
		Capital Region Integrated Growth Management Plan	Land Use Planning
Regional	North Saskatchewan Watershed Alliance	Integrated Watershed Management Plan (in progress)	Land Use Planning
	River Valley Alliance	A Plan of Action for the Capital Region River Valley Park	Land Use Planning
	Capital Region Board	Capital Region Plan (under development)	Land Use Planning
Municipal	Planning & Development	Municipal Development Plan	Land Use Planning
		Zoning Bylaw	Land Use Planning
		Sustainable Building Policy (C-532)	Ecological Design
		River Valley Area Redevelopment Plan	Land Use Planning / Ecosystems Protection
	Office of the Environment	Environmental Policy (C-512)	Ecosystems Protection

<sup>401</sup> BAP at 11

		Environmental Management System Policy (C-501)	Environmental Assessment / Wetlands / Water / Ecosystems Protection
		Environmental Strategic Plan	Ecosystems Protection
	Office of Natural Areas	Natural Areas Systems Policy (C-531)	Ecosystems Protection
		Biodiversity Action Plan	Ecosystems Protection
		Natural Connections Strategic Plan	Ecosystems Protection
	Parks	Corporate Tree Management Policy (C-456)	Ecosystems Protection
		Integrated Pest Management Policy (C-501)	Ecosystems Protection
		Parkland and North Saskatchewan River Valley Utility Installation Policy (C-307)	Ecosystems Protection
		Urban Parks Management Plan	Ecosystems Protection / Land Use Planning / Ecological Design
		Roadways and Parks Naturalization Master Plan	Ecosystems Protection
		Ribbon of Green Master and Concept Plans	Ecosystems Protection

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