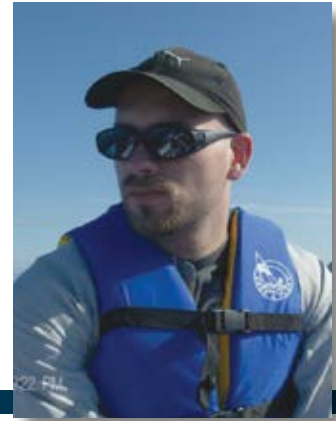


An Impossible Dream?: Biodiversity in Alberta's Largest Urban Centres



By David Robinson

Planning for ecological functioning is probably not what comes to mind when thinking of urban development but that's exactly what the City of Edmonton and City of Calgary are doing. The City of Edmonton published their *Biodiversity Action Plan* in 2009, after publishing their *Natural Connections Strategic Plan* in 2007. The city aims to enhance species di-

versity by establishing and protecting a network of interconnected natural areas around the city. It outlines a number of other 10-year goals, including reducing pollutants, reducing waste, and updating current infrastructure to meet environmental standards.

In 2011, Calgary also committed to a Biodiversity Plan and, in November 2014, received comments on the second draft of

its plan, cleverly titled *Our BiodiverCity: A 10-year plan to integrate with Calgary's nature*. It promises to incorporate more ecological principles into the management and protection of Calgary's ecosystems and parks. Following the plan, the City hopes to see an additional 20 percent of natural open space in Calgary for increased biodiversity. Both cities formally signed the Durban Commitment, making them participants in the Local Action for Biodiversity (LAB) project. This project is coordinated by a non-profit global organization of over 1,000 municipalities known as ICLEI – Local Governments for Sustainability.

Biodiversity is still a fairly new concept for decision-makers. It was introduced in the late 1960s as “biological diversity” and was not commonly used until the 1980s when the contracted word we use today was adopted. As a concept, biodiversity has a simple, very encompassing definition. In essence, it refers to the variety of life in a given region, or “... diversity within species, between species and of ecosystems,” as the United Nations defined it in the 1992 *Convention on Biological Diversity*. 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.

Biodiversity is declining in regions all over the globe. Here the *Canadian Biodiversity Strategy* lists it as among the most critical threats facing humanity today. According to



Edmonton's ecological network. CREDIT: © CITY OF EDMONTON (SOURCE: NATURAL CONNECTIONS; CITY OF EDMONTON INTEGRATED NATURAL AREAS CONSERVATION PLAN)



Edmonton's ravines constitute a biodiversity core area in the city. PHOTO: © CITY OF EDMONTON

the UN Convention, species extinction rates in this generation have skyrocketed to about a thousand times greater than historic rates. The Convention directly attributes this to habitat destruction and overexploitation, invasive species, and climate change.

Given that human development has such an impact on biodiversity it is a wonder how we can plan to include it as a priority in urban development at all. Traditionally, urban development involves clearing, bulldozing, and building with little or no regard for the land. However, the biodiversity plans suggest that it does not necessarily have to be that way.

Edmonton's plan outlined a number of key challenges to overcome to meet their goals. The city's population has been increasing steadily over the past 25 years; much of the natural land in the region of Edmonton was unprotected and vulnerable to increasing development pressure. Edmonton released a *State of Natural Areas* report in 2006 which determined that a majority of natural areas around the city's river valleys would be lost if land development were to continue using the 2006 practices. In addition to increasing development pressure, increased land costs and limited public knowledge of the importance of natural systems were challenges faced by the action plan.

According to Grant Pearsell, Director of Parks and Biodiversity with the City of Edmonton, securing land for protection is a major challenge. Alberta has no enabling

legislation that allows municipalities to protect forests or individual trees. Forested land is often privately-owned and the city loses much of its forest through landowner activity. Similarly, Alberta municipalities are limited in their abilities to protect wetlands. Current compensation rates associated with the *Interim Provincial Wetland Policy* for offsetting wetland destruction around the city have the effect of accelerating drainage of urban wetlands. With the introduction of the new *Alberta Wetland Policy*, compensation money owing is based upon the price of land at the point of impact. This policy shift should have a positive effect and increase the number of wetlands protected in urban municipalities. A Wetland Task Force, comprised of the City of Edmonton, Urban Development Institute, Province of Alberta, and Sierra Club has been formed to find ways to work together to implement the new wetland policy.

Still, Pearsell stresses that challenges should not discourage the production of such plans. We can advocate for legislative change if needed but we ultimately must work with the cards we are dealt. Edmonton's *Biodiversity Action Plan* has provided the City with the opportunity to embed biodiversity values solidly within its planning framework. For example, during the creation of the biodiversity plan, the City was also updating their Municipal Development Plan (*The Way We Grow*), Environmental Strategic Plan (*The Way We Green*),

and Transportation Master Plan (*The Way We Move*) that guide urban development and land use throughout the city. These integrated policy plans now reflect the biodiversity plan, arguably placing it on an equal footing with other City policies. Terms of Reference for suburban area structure plans have been updated to include ecological information and all new neighbourhoods are designed with natural areas, parks, and other open space arranged in an ecological network. The biodiversity and natural connections plans also influenced the 2010 *Wildlife Passage Engineering Design Guidelines*, which provide transportation designers with specific criteria for incorporating the needs of wildlife in their designs so that wildlife can cross more easily major roadways. The City of Edmonton is now constructing its first wildlife passage for moose in northeast Edmonton and has a major wildlife passage for the Anthony Henday Drive ring road.

These changes were great opportunities to include biodiversity in development decisions around the City of Edmonton. Five years later, Edmonton has all the components needed for a functioning ecological network with approximately 4,000 hectares currently protected in the city. Continued planning for the protection of these components, including restoration projects, will allow for the long-term sustainability of an ecological network in Edmonton. Using projections based on the balance between gained and lost land, the City expects about 5,500 hectares of protected land by 2025. Edmonton is in the final stages of a major ecological mapping project and has identified 14,000 discrete ecological sites within its boundaries. The data will help the city greatly improve its conservation efforts.

The ecological network model has proved to be a powerful tool for Edmonton's development. City engineers were always interested in accommodating ecological functioning but were unsure how best to integrate that goal into their projects. The *Biodiversity Action Plan* and associated plans provide the opportunity for designers and developers to collaborate and allow groups of varying disciplines to approach problems

together. According to Pearsell, Edmonton fostered the creation of the Edmonton and Area Land Trust to expand its capacity and protect land, which the community never had the capacity to do until now.

The success of Edmonton's biodiversity plan will hopefully help inspire Calgary's efforts. Calgary's population is expected to double by 2075, and the city's housing, services, and industry must expand to accommodate that. *Our BiodiverCity* cites numerous opportunities to improve biodiversity in the city. They include conserving and reclaiming wetlands during development of a planned 384 hectare industrial park in east Calgary and establishing a monitoring program by a city waste management facility to assess impacts on adjacent wetlands. In terms of actions, the City proposes to develop an Ecological Integrity Index (EII) for Calgary's parks and natural spaces. This will be a concrete biodiversity scoring system to establish a baseline and track progress towards enhanced biodiversity. The EII will grade habitat health, map and record critical habitat, and track changes in plant and wildlife diversity (including invasive species) within parks. It also will monitor how biodiversity responds to disturbance of the surrounding land. The EII will be used to produce park planning policies and guidelines. The plan will set 2025 targets for restored

natural lands, land fragmentation, and invasive species. The City will also sponsor a research program that will interview Calgary citizens and Alberta urban biodiversity experts to understand citizens' perceptions of urban biodiversity. From this project the city will develop public education and engagement programs that will work with the public's current level of understanding.

Steven Snell, a planner with Calgary's Parks, Planning, and Development department, says this is not the first time biodiversity has been considered in Calgary's municipal decision making. The city had already found some success with previous conservation projects, such as Nose Hill Park and the Inglewood Bird Sanctuary, and established a *Wetland Conservation Plan* in 2004. In Calgary's 2009 *Municipal Development Plan* (MDP), biodiversity was included as a component for conserving and restoring Calgary's green spaces. "*Our BiodiverCity* gives a finer grain of action for the broad policies of the MDP," said Snell. "It aims to create a corporate picture of biodiversity, to engage the conservation ethic in Calgary and brings it from Calgary's signature natural areas into our neighbourhoods."

Of course, such a plan relies heavily on public cooperation. Thankfully, there is strong public interest in the plan's goals. The *BiodiverCity* document notes that a 2014 sur-

vey revealed the majority of Calgary citizens support conserving nature. Nearly 90 percent believe the city's public parks improve quality of life and that an ideal city contains sustainable urban forests with a diversity of trees. Just over 70 percent of respondents believe biodiversity is an essential component of a city park and that individuals can take action to help the environment. "I hope it inspires "rewilding" initiatives to restore a greater ecological function in underused open space, in neighbourhood gardens, in front yards," Snell added. "I hope it continues Calgarians' pride in their parks and city in general."

We can either use nature as a blank slate on which to develop cities, as has too often been the case in the past, or instead grow in response to nature and attempt to include valuable natural processes in new developments. Such plans are important steps in raising citizen awareness about the values of biodiversity and potential threats imposed on it. A significant majority of Alberta's population is found in Calgary and Edmonton so programs aiming to get city residents involved in conserving biodiversity may influence other municipalities to adopt similar projects and develop their communities with biodiversity in mind. ♣



Big Lake is part of the regional biodiversity core area including and adjoining to northwest Edmonton. PHOTO: © CITY OF EDMONTON