

Beaverhills Lake, Alberta, Canada

Submitted by Irena Creed, Western University

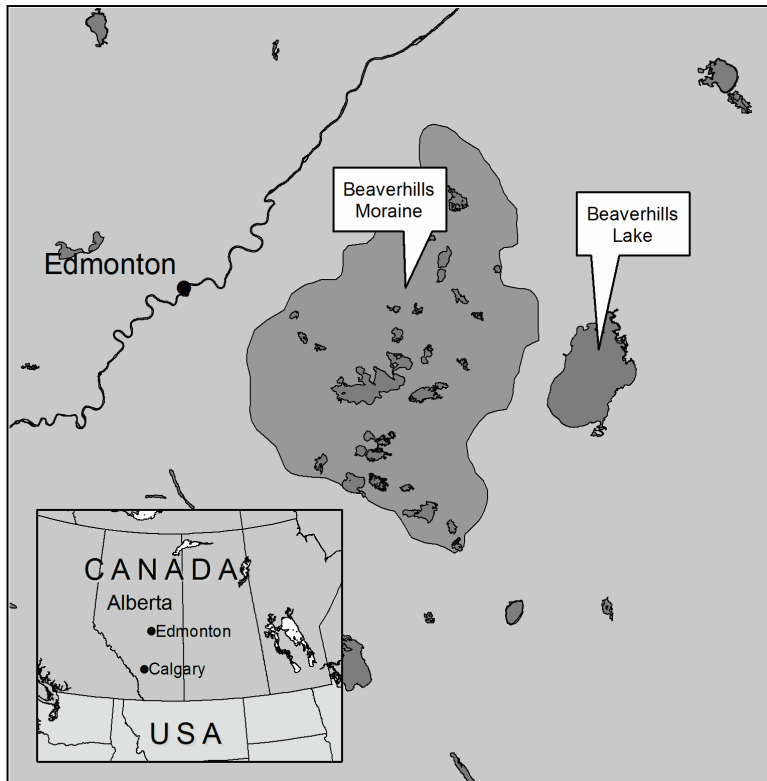


Figure 1. Beaverhills Lake and surrounding area.

Background Information:

The Beaverhills Lake lies approximately 60 km east of Edmonton in central Alberta, Canada. The lake was designated a Ramsar site in 1987 and is recognized for its high diversity of wetland and bird species. The site forms a significant staging area for numerous migratory species, including the Greater White-fronted Geese, Snow Geese, and Pectoral Sandpipers. In 2002, the Beaverhills Lake dried up following severe drought and increased anthropogenic pressure. The Beaverhills Moraine, a “knob and kettle” terrain, is situated within the Beaverhills Lake watershed. The Moraine maintains a large number of wetlands and lakes, and the area remains predominately naturally vegetated due to its poor agricultural potential.

Main Research and Management Problems:

Wetlands in the Beaverhill Lake Region provide a large quantity of ecosystem services to the area, including water supply and storage, water purification and recreation. Wetland loss due to the expansion of agriculture, industry and urban areas is resulting in a significant loss of these services. The city of Edmonton is the fastest growing metropolitan region in Canada, and its expansion is putting significant pressure on the environmental reserves within the area.

Dr. Irena Creed (Western University) and Suzanne Bayley (University of Alberta) have been developing site- and remote-based wetland assessment methods for defining the ecosystem services provided by wetlands in the Beaverhills Subwatershed. Site-based wetland assessment methods have limited value for broad scale land use planning, so there is a need for remote-based assessments that adequately allow land use planners to make informed decisions about avoiding and mitigating the effects of development on wetlands. Using a combination of GIS and remote sensing techniques, wetland function and value can be defined at these broad scales.

The Government of Alberta is developing a new Wetland Policy for the province. A robust, repeatable wetland assessment method is required for the implementation of strategies to avoid and mitigate the effects of development on wetlands. Developing remote-based wetland assessment methods will greatly benefit the Wetland Policy through its development and implementation phases by providing a baseline for wetlands in the region. The Beaverhills Subwatershed will serve as the proving ground on which these techniques are being tested.

Possible End-Users:

Wetland and wildlife researchers, conservationists, policy makers, land use planners, local residents.

Site Conditions:

The climate of the Beaverhills Lake Region is temperate with a daily average temperature of 2.4°C. Average annual precipitation is 483mm, 22% of which falls as snow. Vegetation transitions from Aspen forest in the north to grasslands in the south. Due to the surficial geology wetlands in the area are typically closed with no surface water connection and drainage occurs predominately as groundwater recharge.

Monitoring and Data:

Meteorological, hydrological (surface water and groundwater well data), physicochemical, biological, land use and land cover, SAR, SPOT, Aerial Photography, LiDAR derived DEM are available.

Publications:

Publications by GWEN members are in preparation.

Beaver Hills Initiative (2010) Beaver Hills Initiative: The Landscape. [website] (last updated unknown) accessed January 31, 2012, available at <http://beaverhills.ca/landscape>