

## South Saskatchewan Canyon – Chappice Lake Area

### SITE LOCATION

The South Saskatchewan Canyon - Chappice Lake Area is located approximately 20 kilometres northeast of the city of Medicine Hat beginning at Chappice Lake and extending north along the South Saskatchewan River. It includes the land that lies east between the Canadian Forces Base Suffield National Wildlife Area (CFB Suffield) and the Alberta-Saskatchewan border. The climate of this region is semi-arid with an average annual precipitation of 33cm<sup>1</sup>. The majority of the land is publicly owned and there are many grazing leases issued to private cattle ranchers.

### THE SOUTH SASKATCHEWAN CANYON

The South Saskatchewan Canyon is located along the southwestern border of the CFB Suffield northeast from Chappice and Sam Lake. The area showcases a spectacular canyon along the South Saskatchewan River comprised of extensive coulees, eroding cutbanks, slump blocks and rugged badlands<sup>2</sup>. The slopes and cliffs of the valley rise sharply from the river's edge with many crevices that provide habitat for a number of species including bats<sup>3</sup>.

This area is one of the premiere wild river sections in the grassland natural region. The riparian areas throughout the canyon are intact and support diverse coulee vegetation<sup>2</sup>, which provides habitat for focal species and protects the aquatic environment. This stretch of the river contains deep pools that offer critical habitat for fish such as the federally endangered lake sturgeon<sup>2,3</sup>. The canyon also offers nesting areas for birds of prey, such as the prairie falcon, and is a provincially important staging area for Canada Geese<sup>2</sup>.



The Canyon is a vital overwintering area for large snakes and is home to Alberta's only lizard species, the short-horned lizard(see photo above), currently listed as vulnerable in Canada's Species At Risk Act (SARA)<sup>4,5</sup>. Other species at risk found in this environmentally significant area include the great plains toad and western burrowing owl, as well as several other fish and vascular plant species of recognized conservation concern<sup>2</sup>. The area is also an important wildlife corridor used by pronghorn migrating south from CFB Suffield during the winter months to escape the harsh, snowy conditions.

## **CHAPPICE LAKE**

Chappice Lake is a 2.1km<sup>2</sup> shallow, saline lake that is less than 1 metre deep throughout and has approximately 7 kilometres of shoreline<sup>6</sup>. Sam Lake is of similar size and type and is located approximately 5.5 kilometres southeast of Chappice Lake. The surrounding land contains large areas of contiguous crown land greater than 10km<sup>2</sup> with most having 75% or more of native prairie species vegetation<sup>7</sup>.

The areas in between and outward from the lakes are comprised of rare, native, dry mixedgrass prairie communities that provide habitat for a number of species, some of which are listed under SARA (such as the northern leopard frog, burrowing owls, and Ord's kangaroo rat). Upland areas contain habitat for large populations of richardson's ground squirrels, an indicator species whose population numbers can be used to assess the health of other species. These ground squirrels are also an important food source for many birds of prey and other ground-nesting grassland birds.

Water levels in both lakes and the surrounding vegetation are maintained by an extensive saline groundwater seepage zone (where the water table intersects the land surface), which is a unique feature within the southern Alberta landscape<sup>5</sup>.

Both lakes provide internationally significant critical habitat and staging areas for migrating shorebirds and waterfowl. Between 1987 and 2002, a total of twenty three species of shorebirds were recorded at Chappice Lake in the spring and fall months<sup>6</sup>. This area provides the only permanent mixedgrass nesting habitat in Alberta for the nationally and provincially endangered piping plover<sup>4</sup>. In addition, cottonwood trees on the north backshore of Chappice Lake provide nesting sites for the currently threatened ferruginous hawk. Some of the other bird species of concern observed in the area include: burrowing owl, sprague's pipit, and long-billed curlew<sup>2</sup>.

Chappice Lake is considered to be of international importance due to its high concentration of breeding and migratory birds. The Lake is thought to support 1% of the global or North American population of the sanderling and Baird's sandpipers<sup>8</sup>. Due to these characteristics, in 1997 Chappice Lake was recognized as an Important Bird Area (IBA) by BirdLife International, the Canadian Nature Federation and Bird Studies Canada. IBA's are sites of recognized importance for the habitat they provide bird species<sup>8</sup>. Unfortunately, such a designation does not provide any protection from further development and other possible threats.

## **THREATS**

Several threats facing this landscape have been identified. Oil and gas development is very high in the area compared to other locations within the grassland natural region. The Chappice – Sam Lakes environmentally significant area has a high well density of 4.14 oil heads/km<sup>2</sup>. Numerous wells produce sweet gas, with energy leases held by Enco Plus, Direct Energy, Search Energy, and Nexen Drilling<sup>6</sup>. Being that the water table lies very close to the ground surface

surrounding the lakes, this area is more susceptible to groundwater depletion or contamination caused by industrial activities<sup>6</sup>.

The Keystone Pipeline project proposed by TransCanada Keystone Pipeline GP Ltd. would pose as a significant threat to this site. The proposed pipeline has several routing options but each would pass through 1.8 kilometres of the South Saskatchewan Canyon<sup>9</sup>. The Canadian portion of the project is scheduled to begin in 2013 and will involve the construction of 526 kilometres of pipeline with accompanying facilities. Construction and operation of the pipeline would cause many adverse environmental effects, including:

- Disturbance of grasses, forbs, shrubs and trees as well as native range, rare ecological communities and rare plants;
- Reduced groundwater flow leading to increased saturation and increased salinization;
- Introduction of sediments and contaminants to terrestrial and aquatic ecosystems;
- Loss of fish habitat, including blockage of fish passage during migration periods (lake sturgeon);
- Loss of wetland function, terrestrial and aquatic habitat in wetlands; and
- Disturbance of wildlife, including SARA listed species (northern leopard frog, great plains toad, burrowing owl, piping plover, ferruginous hawk, long-billed curlew) as well as other species of special status<sup>9</sup>.

Another major threat facing this area is the proposed construction of the East Palliser Transmission Project by Altalink. If constructed, the proposed route would intersect the land area between Chappice and Sam Lake; causing habitat fragmentation<sup>10</sup>. Wildlife disturbance would occur during the construction phase of the project, and movement patterns of many species including migratory birds and pronghorn may be affected by the transmission lines.

In addition, other development and land use will pose as threats to the species and wildlife within this valuable landscape. The realignment of the existing Highway 41 discussed in the Milk River section, would likely create the same threats of wildlife mortality and result in the possible disturbance of important bird staging and/or nesting areas caused by construction and subsequent increased road traffic<sup>6</sup>. The number of bird watchers is increasing around Chappice – Sam Lake which may potentially disturb piping plover and other birds during critical periods of their nesting cycle<sup>6</sup>.

### **WHAT CPAWS SAB IS DOING**

Supported by Mountain Equipment Co-op and in partnership with the University of Calgary, this summer, CPAWS SAB will be working on the ground with local landowners and organizations in this area to define conservation objectives and identify potential management tools to conserve this critical grassland ecosystem. Due to the ecologically significant features, similar land use and to the importance of maintaining connectivity across the landscape, the South Saskatchewan Canyon and Chappice Lake areas were combined and will be researched together as one large area. With so much at stake for species at risk, carbon and water storage, and a part of Alberta's cultural heritage, finding ways to conserve what remains of our native grasslands is essential for a healthy environment and healthy communities.

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- <sup>1</sup> Environment Canada (1971-2000). National Climate Normals Medicine Hat [Internet] Available from: <http://www.climate.weatheroffice.gc.ca/> Accessed July 2010.
- <sup>2</sup> Fiera Biological Consulting (2009) Environmentally Significant Areas: Provincial Update 2009..
- <sup>3</sup> Holloway, G., & Barclay, R. (2000) Importance of Prairie Riparian Zones to Bats in Southeastern Alberta. *Ecoscience*. Volume 7 (2): 115-122.
- <sup>4</sup> Alberta Sustainable Resource Development (2009) Species at Risk. Alberta Sustainable Resource Development, Fish and Wildlife Division [Internet] Available from: <http://www.srd.alberta.ca/BioDiversityStewardship/SpeciesAtRisk/Default.aspx> Accessed August 2010
- <sup>5</sup> Sweetgrass Consultants Ltd. (1997) Environmentally Significant Areas of Alberta: Vol. 1,2 and 3. Prepared for Resource Data Division Alberta Environmental Protection. Calgary, Alberta.
- <sup>6</sup> Dickinson, D. (2009) Chappice Lake Important Bird Area Conservation Plan [Internet] Available from: [http://www.ibacanada.com/cons\\_plans.jsp?lang=en](http://www.ibacanada.com/cons_plans.jsp?lang=en) Accessed July 2010.
- <sup>7</sup> Alberta Environmental Protection (1997) The Grassland Natural Region of Alberta.
- <sup>8</sup> Important Bird Areas Canada (2009) Important Bird Areas in Canada [Internet] Available from: <http://www.ibacanada.com/> Accessed August, 2010.
- <sup>9</sup> National Energy Board (2006) Draft Environmental Screening Report: Keystone Pipeline. pp. 33
10. Altalink (2010) Southern Alberta Transmission Reinforcement: East Palliser Transmission Project [Internet] Available from: [http://albertaelectricityfuture.com/alberta/?page\\_id=421](http://albertaelectricityfuture.com/alberta/?page_id=421) Accessed July 2010.