

1.1 Upper Wanapitei River Subwatershed



General Description

- **Total area:** 1028.32 km², the largest subwatershed within the CS jurisdiction.
- **Drainage:** The Wanapitei River begins as two main branches in the upper reaches of the watershed. The western branch flows northeast before turning south and joining with the East Wanapitei River. After travelling 117 km, the longest segment of river within the CS jurisdiction, the Wanapitei River reaches Lake Wanapitei.
- **Topography:** The relief of the rolling glaciated hummocky terrain is of the order of 230m.
- **Geology:**
 - **Bedrock Geology:** Precambrian bedrock of the Huronian Province to the north and south, and the Superior Province to the east and west.
 - **Quaternary Geology:** Primarily covered by exposed bedrock or rock covered by a discontinuous, thin layer of drift. Intrusions of glaciofluvial outwash deposits in the northwest and throughout, made up of gravel and sands.
- **Soils:** Most surface substrates are made up of stable bedrock and sandy loams, with some organics throughout.
- **Groundwater:**
 - Fairly large areas of highly vulnerable aquifers (HVA) were identified throughout the subwatershed but are concentrated in the northern reaches of the subwatershed.
 - A large groundwater recharge area (SGRA) was identified in the northwest section of the subwatershed.
- **Land cover:** The land use is characterized by numerous lakes, ponds, bedrock outcrops and muskeg swamps. The remaining areas are typically forested by both deciduous and coniferous trees.
 - Forest covers an area of 894.3 km², 87.0 % of the subwatershed.
 - Lakes cover an area of 81.96 km², 8.0% of the subwatershed.
 - Wetlands cover an area of 69.8 km², 6.8 % of the subwatershed.
- **Land Use Type:**
 - **Zoning:** Because of its northern range, only 8.2% of this subwatershed is subject to the City of Greater Sudbury's Zoning By-law. Of that area, 81.45km² (96.1%) is rural area while the remaining 3.29km² (3.9%) is parks.

Indigenous Communities and Traditional Territories

- This subwatershed falls within the Robinson-Huron Treaty Area of 1850.
- It lies within the traditional territories of both the Wahnapiatae First Nation and the Atikameksheng Anishnawbek First Nation.
- The area also falls within the Mattawa/Lake Nipissing Métis traditional territory, Region 5.
- An unending number of lakes that were once part of historical canoe routes for First Nation peoples and fur traders scatter this heavily forested terrain.

Development Pressure

Overall: Low - Some seasonal cottages are located within this subwatershed but very few permanent residents exist. Forestry is the main activity within this subwatershed.

- **Settlement Area:** There are no settlement areas identified in the City of Greater Sudbury's Official Plan.
- **Wastewater Facilities:** There are no wastewater facilities within this subwatershed.
- **Forestry:** Partially within the Sudbury, Spanish and Timiskaming Forests, all three Forest Management Units have several areas identified for harvest in their 2020-2030 plans.
- **Aggregates:** There are currently 8 active and 2 inactive aggregate operations.
- **Mining:**
 - No active exploration reported within the last year (February 2023-January 2024)
 - There are currently 8 active Mining Plans and Permits registered to this subwatershed. Historically, there was one producing mine, an operating copper quarry in 1965 by Canadian Colour Rock Inc.

Recreational Use

- The numerous rivers and lakes in this subwatershed have a wide variety of uses including canoeing/kayaking, swimming, camping and recreational fishing.
- The area is commonly used for Crown-land camping, hiking, hunting, berry picking and general nature appreciation. Due to the forestry industry, trails are plentiful for snowmobiling and off-road vehicle use, providing access corridors to otherwise inaccessible areas.

Water Use

- There are currently no active 'Permits to Take Water' issued within this subwatershed.

Notable Waterbodies

- Welcome Lake is one of the larger lakes in the subwatershed and accessible from the main logging road (Portelance Rd).
- Other lakes identified by recreational users include Brennan Lake, Laundrie Lake, Haentschel Lake, Barnet Lake, Scotia Lake and Sam Martin Lake.
- Many other small to medium sized lakes are present throughout. Access is difficult in this area apart from those accessible by logging roads.

Previously Identified Issues

- Due to the rapid flowing waters and the fine nature of the sediment, erosion was found to be a common occurrence within this subwatershed. (NDCA Watershed Inventory, 1981).

Natural Hazard Identification and Regulation

Hazards and features regulated by Conservation Sudbury include flood and erosion hazards, wetlands, unstable soils, rivers, streams, creeks, and small inland lakes. More on these regulations can be found in the Conservation Authorities Act, O. Reg. 686/21 that addresses the risks of natural hazards.

- **Floodplain mapping:** Currently, there is no floodplain mapping for this area.
 - In the absence of floodplain mapping, flood hazards are estimated based on site conditions. Typically, the extent of the flood hazard is estimated at 1.2 m above the bankfull elevation or high-water elevation.
- **Erosion hazard mapping:** Currently, erosion hazards are evaluated based on the general guidance from the MNRF for confined and unconfined systems.

Water Control Structure:

- There are no water control structures within this subwatershed. Unregulated flow conditions exist upstream of Lake Wanapitei.

Drinking Water Source Protection

- There are no municipal drinking water sources within this subwatershed. It is, however, the headwaters of the Wanapitei River Drinking Water System, a municipal drinking water source. As such, all watercourses within this subwatershed and the lands immediately around them are classified as Intake Protection Zone 3, as the water ultimately drains towards the Wanapitei River drinking water intake.

Water Quality

- **Surface water:** Long-term monitoring of surface water on the East Wanapitei River identified iron concentration that generally exceeded the provincial objectives. Iron is extremely prevalent in rock forming minerals and elevated iron concentrations are typical. (Provincial Water Quality Monitoring Network, MECP)
- **Groundwater:** There are currently no known sources of groundwater data within this subwatershed.

Significant Features

- Wanapitei Provincial Park, a non-operating park, falls partially within this subwatershed, covering an area of 4.33km².
- The Friday Lake Conservation Reserve and Scotia Lake Conservation Reserve, together, cover an area of 13.42km².

- **Wildlife Values:**
 - There are 321 moose related wildlife value areas, covering a total area of 67.96km².
 - There are 8 wildlife value points, which are made up of raptor nesting locations.
- There are no ANSI ecological areas of interest.

Management and Stewardship

- **Wahnapitae First Nation and Atikameksheng Anishnawbek First Nation:** Their traditional territories include the area within these subwatersheds. They are land holders of the area and, as such, are significant stewards of the land.

Data available

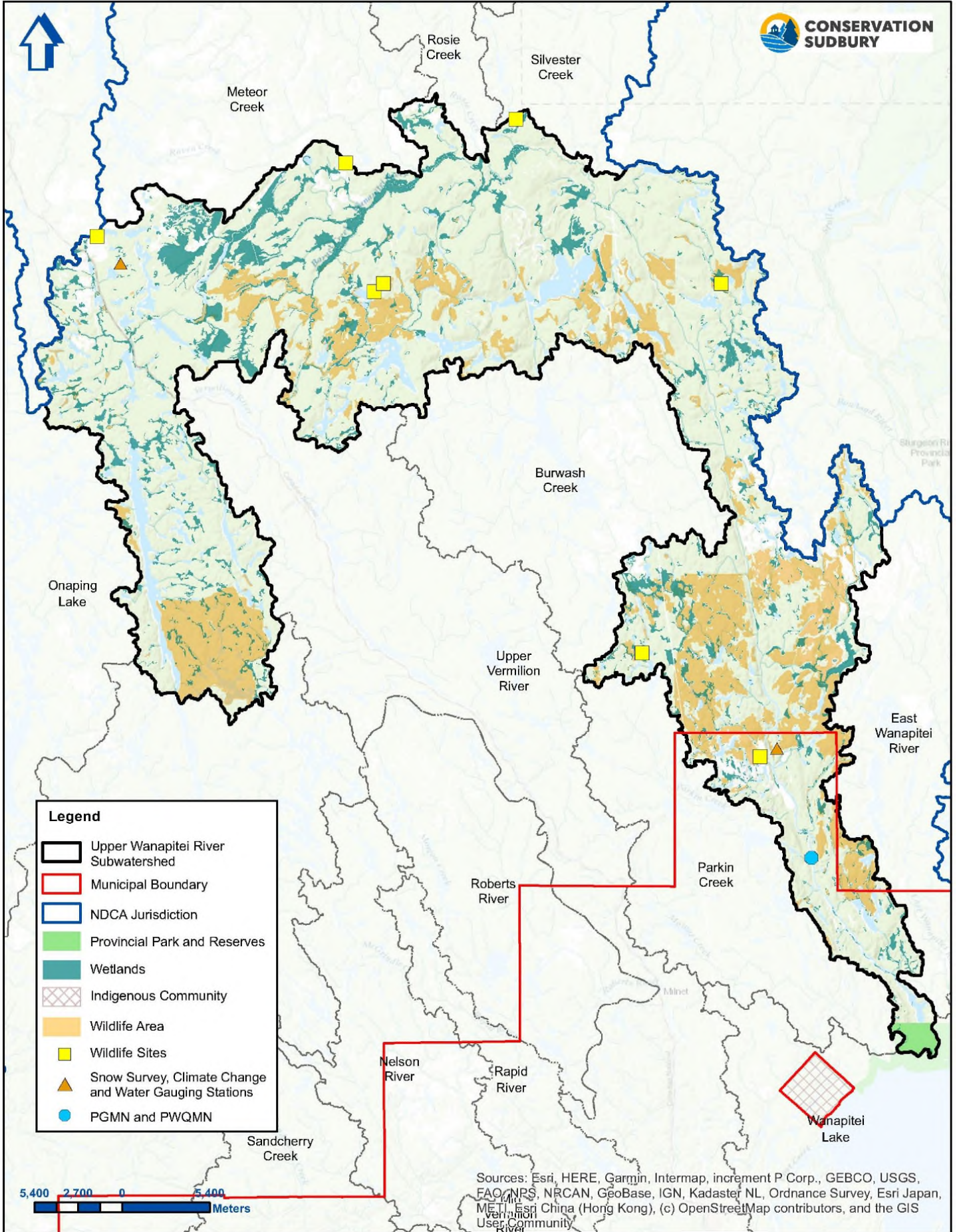
- **Provincial Stream Water Quality Monitoring Network:** Conservation Sudbury, in partnership with the Ministry of Environment, Conservation and Parks, have collected surface water quality data on the upper reaches of the Wanapitei River, since 2007.
- **Co-operative Freshwater Ecology Unit:** Barnet Lk, Haentschel Lake and Sam Martin Lake were sampled as Reference Lakes in the CFEUs long term monitoring of lakes recovering from Sudbury's mining legacy.
- **Lake Partner Program:** Sam Martin Lake, Welcome Lake, Leaks Lake and Prune Lake were sampled for total phosphorus as part of this provincially run, volunteer-based program.

Supporting Documents

Conservation Sudbury, **Greater Sudbury Source Protection Area - Assessment Report**, September 2, 2014.

Nickel District Conservation Authority, **NDCA Watershed Inventory**, September 1980.

S.A. Kirchhefer Ltd., **Flood Line Mapping, Wanup**, 1981 (historical information on the watershed, no flood line mapping of the Upper Wanapitei subwatershed).



Legend

-  Upper Wanapitei River Subwatershed
-  Municipal Boundary
-  NDCA Jurisdiction
-  Provincial Park and Reserves
-  Wetlands
-  Indigenous Community
-  Wildlife Area
-  Wildlife Sites
-  Snow Survey, Climate Change and Water Gauging Stations
-  PGMN and PWQMN

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community