1.6 Burwash Creek, Parkin Creek and East Wanapitei Subwatersheds

General Description

- **Total area:** 618.82 km^2 (Parkin Creek: 193.14 km^2, Burwash Creek: 234.70 km^2, East Wanapitei Creek: 190.98 km^2)
- **Drainage:** Burwash and East Wanapitei drain to the Upper Wanapitei River, while Parkin Creek drains directly to Lake Wanapitei.
    - Parkin Creek: The length of the main channel is 41.6 km with a maximum channel elevation of 479.8 m and a minimum channel elevation of 269.26 m.a.s.l. The slope of the main channel is 5.06 m/km.
    - Burwash Creek: The length of the main channel is 36.4 km with a maximum channel elevation of 478.0 m.a.s.l. and a minimum channel elevation of 325.0 m.a.s.l. The slope of the main channel is 3.93 m/km.
    - East Wanapitei River: The length of the main channel is 49.9 km with a maximum channel elevation of 429.7 m.a.s.l. and a minimum channel elevation of 268.0 m.a.s.l. The slope of the main channel is 3.24 m/km.
- **Topography:**
    - The Parkin Creek subwatershed has a mean elevation of 375.1 m.a.s.l. with a maximum elevation of 487.2 m.a.s.l.
    - The Burwash Creek subwatershed has a mean elevation of 419.3 m.a.s.l. and a maximum elevation of 576.9 m.a.s.l.
    - The east Wanapitei River subwatershed has a mean elevation of 347.0 m.a.s.l. and a maximum elevation of 452.8 m.a.s.l.
- **Geology:**
    - **Bedrock Geology:** Precambrian bedrock of the Superior Province is predominant in Burwash Creek and the north end of Parkin Creek subwatersheds while bedrock of the Huronian Province is found in the south end of Parkin Creek subwatershed and in the East Wanapitei subwatershed.
    - **Quaternary Geology:** Much of the area is covered in Precambrian bedrock, exposed, or discontinuously covered by a thin layer of drift. Small pockets of glaciofluvial outwash deposits occur throughout, consisting of gravels and sands.
- **Soils:** Surficial substrates consist mainly of stable bedrock in all three subwatersheds, with Burwash and East Wanapitei subwatersheds also having larges areas of sandy loam. Smaller areas of sand, gravelly sandy loam and fine sandy loam also exist.
- **Groundwater:**
    - A large section on the north end of Burwash Creek and along the East Wanapitei River are identified as highly vulnerable aquifers. There are also smaller highly vulnerable aquifers identified sporadically throughout all 3 subwatersheds.

- **Land cover:** Within the 3 subwatersheds combined:
    - Lakes cover an area of 44.4 km^2, 7.2% of the subwatersheds.
    - Wetlands cover an area of 53.1 km^2, 8.6% of the subwatersheds.
    - Forest covers an area of 522.9 km^2, 84.5% of the subwatersheds.
- **Land Use Type:**
    - **Zoning:** Because of their northern range, only 24.7 % of these subwatersheds are subject to the City of Greater Sudbury's Zoning By-law. Most of this area is zoned rural, with a small percentage zoned 'Park' where the Wanapitei Provincial Park occurs.

Notable Waterbodies

- Many small to medium sized lakes occur throughout, though access is difficult in this area, with the exception of those accessible by logging road. Some of the more known lakes include Burwash and Little Burwash Lake, Tillie Lake, Fraleck Lake, Parkin Lake, Mowat Lake, Paradise Lake and Telfer Lake.

Indigenous Communities and Traditional Territories

- These subwatersheds falls within the Robinson-Huron Treaty Area #61, of 1850. It also lies within the traditional territory of both the Wahnapitae First Nation and the Atikameksheng Anishnawbek First Nation. 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. After travelling 117km, the Wanapitei reaches the sandy shores of Lake Wanapitei

Development Pressure

Overall: Low - Some seasonal cottages are assumed within these subwatersheds but very few permanent residences exist.

- **Settlement Area:** There are no settlement areas identified in the Sudbury Official Plan.
- **Municipal Wastewater Facilities:** There are no municipal wastewater facilities within these subwatersheds.
- **Forestry:** All three subwatersheds are heavily impacted by the forestry industry. Mostly within the Sudbury Forest, with part of the Burwash Creek subwatershed falling within the Timiskaming Forests, there are large areas identified for harvest in the 2020-2030 plans.
- **Aggregates:** There are currently 3 active and 1 inactive aggregate operation.
- **Mining:** Mining activity in the area is focused on the southern end of the Parkin Creek subwatershed.
    - No active exploration reported within the last year (February 2023-January 2024)
    - There are currently 45 active Mining Plans and Permits registered to these subwatersheds, the majority (43) of which are in the southern reaches of the Parkin Creek subwatershed.
    - Historically, there are no records of a producing mine in these subwatersheds. Several abandoned mine sites are identified throughout, particularly along the southern extremity of the Parkin Creek subwatershed.

Recreational Use

- The rivers and lakes in this subwatershed have a wide variety of uses including canoeing/kayaking, swimming, camping, recreational fishing, and hunting.
- The area is also commonly used for Crown-land camping, hiking, berry picking and general nature appreciation. Due to the forestry industry, numerous trails are available for snowmobiling and off-road vehicle use.
    - There are several groomed snowmobile trails that traverse parts of these subwatersheds, managed by the Capreol Ridge Riders Snowmobile Club and the Nickel Belt Snow Spirits.

Water Use

- There are currently no active Permits to Take Water.

Previously Identified Management Issues

- None identified.

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; unregulated flow conditions exist upstream of Wanapitei Lake.

Drinking Water Source Protection

- There are no municipal drinking water sources within these subwatersheds. They are, however, the headwaters of the Wanapitei River Drinking Water System. All watercourses within these 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 Indicators

- There are no known sources of water quality data in these subwatersheds.

Significant Features

- A small portion of the Wanapitei Provincial Park, a non-operating park, falls within both the Parkin Creek subwatershed (0.6 km^2) and the East Wanapitei subwatershed (0.6 km^2).
- There are no ANSI ecological areas of interest.
- Wildlife Values within these 3 subwatersheds:
    - There are 747 moose related wildlife value areas and 2 great blue heron nesting locations, covering a total area of 126.86 km^2.
    - There are 4 wildlife value points for raptor nesting locations.

Management and Stewardship

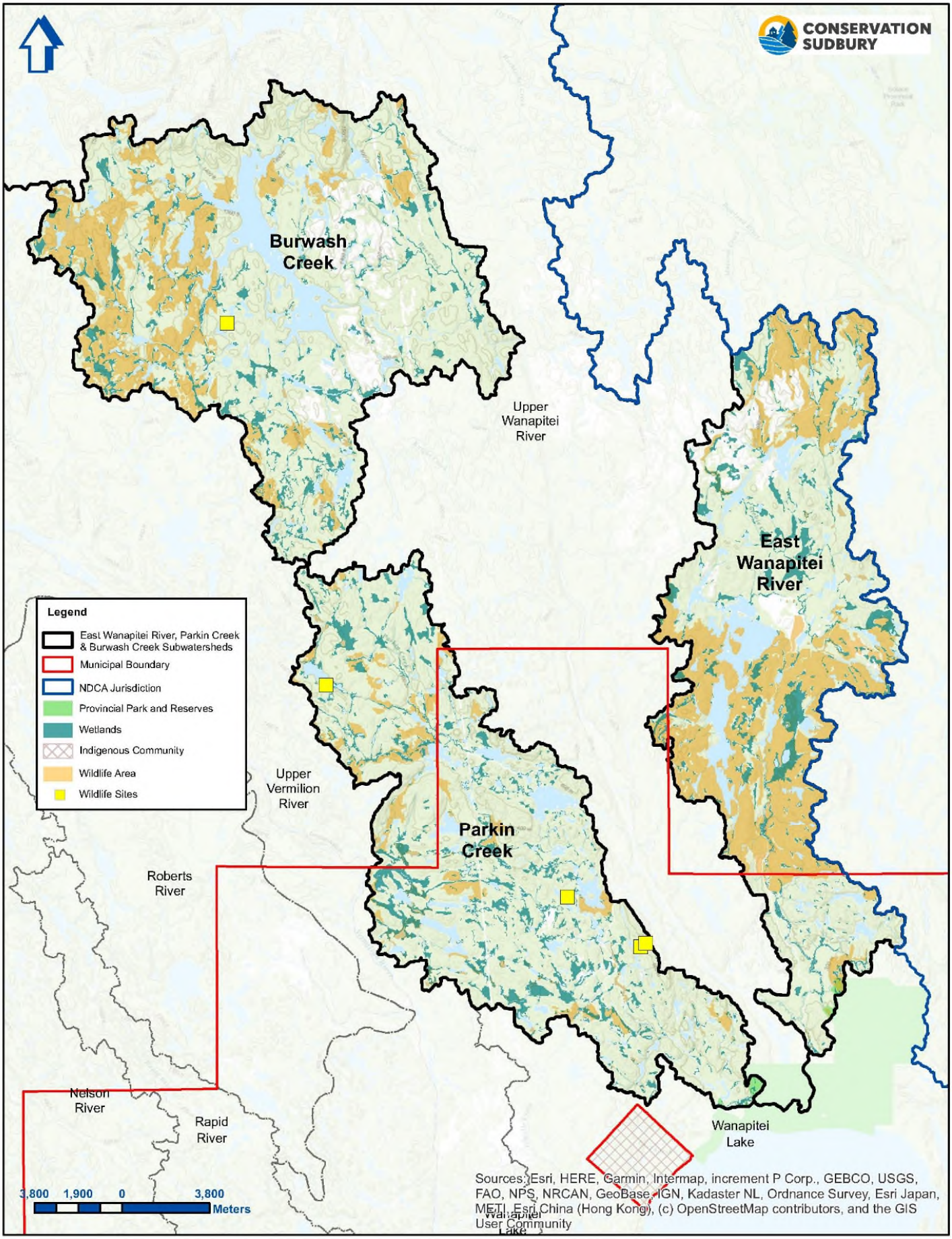
- **Wahnapitae First Nation** and **Atikameksheng Anishnawbek First Nation:** Their traditional territories include the area within these subwatersheds. They are land holders of the area and, as such, are significant stewards of the land.
- **Ministry of Environment, Conservation and Parks:** Provincial Parks and Conservation Reserves are managed by MECP.

Data available

- **Co-operative Freshwater Ecology Unit (CFEU):** Fraleck Lake, Telfer Lake and Tillie Lake have been sampled annually since 1981, as part of an 'Extensive Lake Set' in the CFEUs long term monitoring of lakes recovering from Sudbury's mining legacy. Little Burwash Lake and Mowat Lake were sampled less frequently, as Reference lakes not acidified.

Supporting Documents

There are no supporting documents used for this subwatershed characterization. See 'NAMS - Data Sources' PDF on the Conservation Sudbury website (Natural Asset Management Strategy) for the various apps and resources that were used in developing this document.


CONSERVATION SUDBURY
Burwash Creek
Upper Wanapitei River
East Wanapitei River
Legend
East Wanapitei River, Parkin Creek & Burwash Creek Subwatersheds
Municipal Boundary
NDCA Jurisdiction
Provincial Park and Reserves
Wetlands
Indigenous Community
Wildlife Area
Wildlife Sites
Upper Vermilion River
Parkin Creek
Roberts River
Nelson River
Rapid River
Wanapitei Lake
3,800 1,900 0 3,800
Meters
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