

BC Parks - Fire Hazard Assessment

Champion Lakes Provincial Park

Prepared for BC Parks by
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Introduction

A fire hazard assessment for Champion Lake Park was conducted in late October, 2016 with the intent to form an overall impression of hazard level and potential impact to campers in the high use area of the park. The assessment was done by visual appraisal and using the "Wildland Urban Threat Assessment Worksheet" as a guide only. No empirical studies were conducted for this assessment (calculation of stems/hectare, fuel loading plots etc...).

Forest Stand and Topography

Champion Lakes Park is a mix of several different tree species including fir, larch, pine, cedar, spruce, and several deciduous types among others. The forest stand grows on rolling topography composed of a combination of exposed and thin soiled rocky high ground, to low lying pockets of deeper, moist duff. The park is located in the base of a broad, higher elevation, east-west valley with only one access point coming up from lower terrain to the east. Historical fire perimeter mapping shows an absence of large fire activity in the park since records have been kept, suggesting a long term buildup of fuels in the area. Historical fire incident records show small fire ignition occurring regularly (see Appendix 1).

The surrounding forest is a continuous, coniferous dominated, closed canopy stand leading up to and into the park, interspersed with various aged cutblocks and plantations. A visual inspection of some of the nearby cutblocks revealed consistent surface fuel loading in recently harvested blocks and young plantations, which can act to accelerate and intensify potential wildfire activity. Fuel breaks in the area are limited and consist of the main Champion Lakes road, Marsh Creek FSR, the campground roads and parking lots, as well as Kearns and Champion lakes.

Area Attributes

Main Beach/ Day Use Parking Lot

This area consists of a mix of species growing on rolling topography. The paved parking lot is a fuel free area of approximately 0.75 hectares with the main beach area comprising another 0.6 hectares. These two fuel free areas are divided by 120 metres of continuous forest. The fuel loading and ladder fuel component within this area is moderate to high. Two public shelter/change room structures are set in the tree line adjacent to the beach. Both are susceptible to fire due to the proximity to the tree line and having favourable openings and surfaces for embers to penetrate and ignite.

The fuel free beach and parking area can serve as an existing safety zone for low to moderate intensity wildfires. Some challenges exist for using these areas as safety zones for high intensity wildfires. Although adequate in lengths (beach 160m, parking lot 100m), the width of the safety zones (beach 25m – parking lot 40m) reduces its effective protection against radiant heat. Also, in the event the main access road is cut off by wildfire, vehicles trapped in the parking lot may be at risk of igniting. The resulting toxic smoke could affect people seeking safety on the beach. These two areas would work better if they were linked together by modifying the intervening forest between them.



Main Beach



Day use parking lot



Fuel accumulation - day use parking lot



Main beach structures close to forest

Camper Beach

The camper beach has a well-defined open area of approximately 0.5 hectares and another 0.2 hectares of gravel parking lot, bordered by a closed canopy cedar/hemlock forest (with fir, larch, and some deciduous intermixed) growing on predominately flat ground. This forest type typically grows on more moist sites, with the benefit of carrying decreased fire intensities compared to other coniferous fuels (subject to summer drought conditions). The stream connecting the second and third lakes is adjacent to the parking lot and supports the moist growing conditions. The forested area has a moderate to high amount of surface fuel loading and ladder fuels.

The fuel free beach area can serve as an existing safety zone for low to moderate intensity wildfires with few modifications other than thinning/pruning the small pocket of fir trees adjacent to the beach and stream near the shoreline. Dry, cured grasses lead up to the beach area in summer, and if alight in a wildfire, could emit dense smoke. This may impact people with breathing difficulties in the event of this area being used as a safety zone. The trail to the main beach should be considered an egress route as well to allow for maximum flexibility in selecting an alternate safety zone. This trail also has some beneficial fire resistant features with areas of bare rock and an adjoining moist riparian zone. Further forest fuels modification would be required in these areas for protection against high intensity wildfires.



Camper beach open area



Fuel accumulation - camper beach



Camper beach parking

Campground

The campground is mostly defined by an overstory of fir and larch with high canopy base heights and juvenile cedar undergrowth, growing on a combination of high ground and sloping terrain. The surface fuels are largely absent around the campsites due to campers scouring the area for firewood. The outside perimeter of the campground and the area between the campsites and third lake shoreline is more heavily fuel loaded from recent windfall events and accumulations of fuel not impacted by firewood gathering.

The area comprising the campsites constitutes a low to moderate hazard in itself, but is impacted by the surrounding heavier fuel loading, as well as the steeper slopes and gullies leading up to the campsites from the shoreline. If the camper beach and/or the main beach and parking lot are to be the designated safety zones, egress routes to both areas could be affected, as evacuees must transit through the area of heavier fuels and potentially higher fire intensity to get there.



Light fuel loading between campsites



Fuel accumulation between campsites and shoreline

Potential Ignition Sources

The main risks for wildfire ignition are lightning, campfire use, and industrial activity in the adjacent working forest. Of these, campfire use is the one manageable factor that could be looked at to aid in wildfire prevention.

Hazard Rating

The overall hazard rating for the park is considered high due mostly to the continuous forest stand and accumulations of surface fuels within and around the park, combined with the one way access/egress route and potential volume of visitors. This rating is derived from a combination of the hazard rating worksheet and definitions from the WUI (Wildland Urban Interface) Threat Assessment Guide (tailored more to the urban forest), and the reviewers' judgement.

Mitigation Options

Although it is challenging to address all the areas of concern presented herein, there are several options to reduce the hazard to campers within the park.

1. Education

- a. Production and dispersal of pamphlets/ signage on proper campfire use, wildfire ecology points of interest, and an evacuation plan in the event of a wildfire.
- b. More prominent signage regarding use of campground egress routes and safety zones (currently written in marker on posted laminated campground map).
- c. Use of BC Wildfire staff to assist in fire ecology presentations in the campground theatre.

2. Resources

- a. Acquire a portable fire suppression system (truck mounted or built into a trailer) to quickly respond to and contain fires within the campground until BCWS arrival. Ensure staff onsite are trained and capable of using it.
- b. Install irrigation sprinkler systems to maintain green grass in safety zones and increase aerial moisture for public protection during fire events.
- c. Acquire a satellite phone and/or portable radio for staff to rapidly communicate new wildfires to BCWS and increase initial attack response times.

3. Forest Fuels Modification

- a. Allow campers to harvest firewood in designated areas to assist in surface fuel reduction. This could have the same impact as is seen in the low levels of surface fuels within the campground sites.
- b. Procure firewood for sale to campers from areas in need of forest fuels reduction within the park.
- c. Conduct fuel modification work in the following areas (see Appendix 2):

Priority 1) main beach and parking lot, area along the third Champion Lake shoreline from the boat launch to the camper beach and upslope to the campsites.

Priority 2) camper beach and parking lot, path from main beach to camper beach

Priority 3) between second Champion Lake and west end of the campground, campground sites.

This can consist of full stand mechanical harvesting and replanting with non-fire enabling species (deciduous, high base canopy types like larch etc...), to in-stand thinning, limning, and surface fuel clean up with an emphasis on removing fire susceptible species. An RPF at the local forest office should be consulted to assess forest health and potential windthrow issues to assist with planning.

- d. Consult with the adjacent forest licensee, BCWS, and local forestry office to encourage harvest of adjacent forest in a manner that encourages lower fire intensities and establishes landscape fuel breaks. Also consider harvesting within the park to an ecosystem restoration standard to clean up the understory in targeted areas.
- e. Investigate the feasibility of conducting prescribed burning within the park with the intent of both understory burning to clean up surface and ladder fuels, and stand replacement burning to create a natural fuel break.

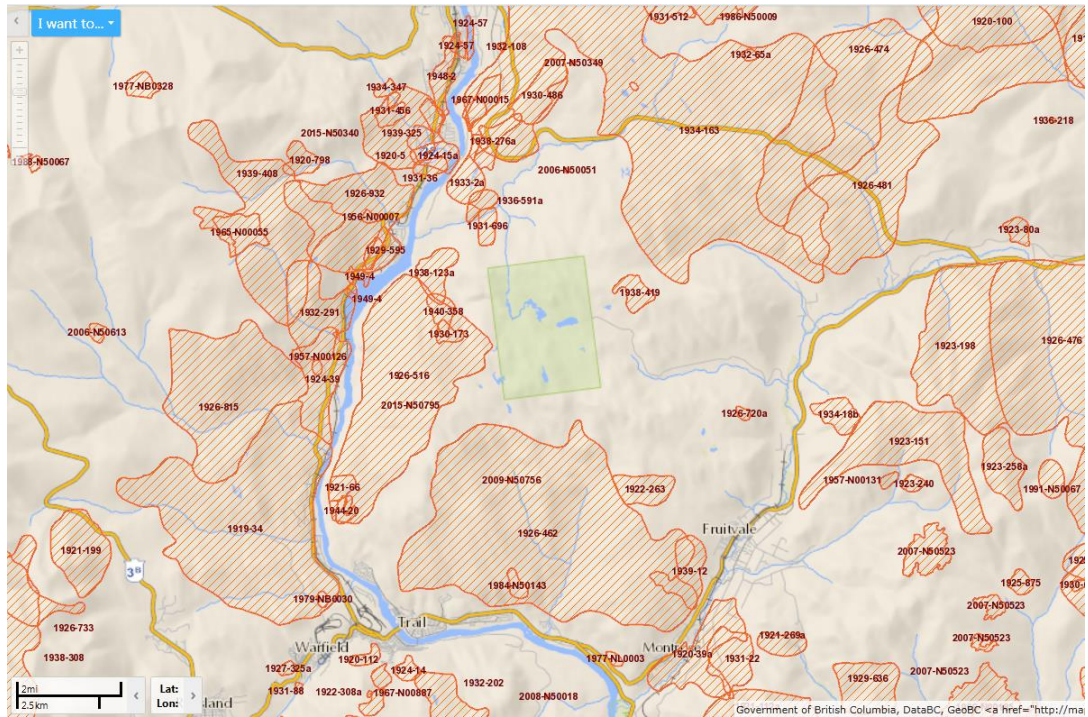
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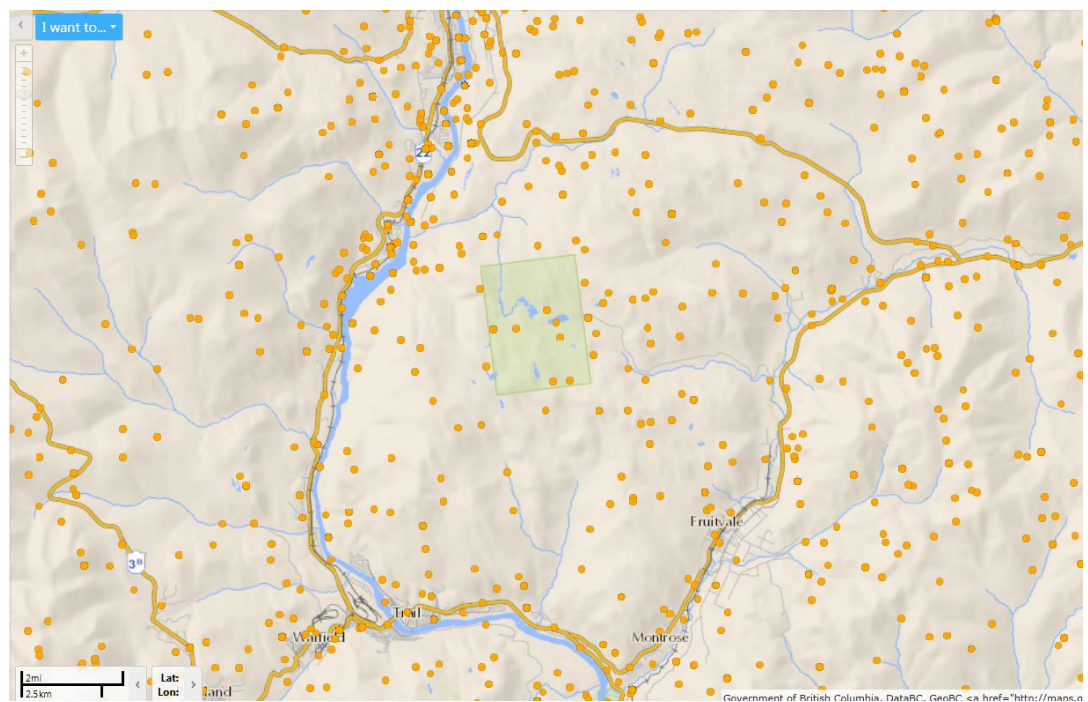
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Appendix 1

Historical Fire Perimeters (over 4 hectares)



Historical Fire Incidents



Appendix 2

