COMPLAINT INVESTIGATION

Planned Ignitions on the 2023 Downton Lake Wildfire

MAY 2025

FPB/IRC/258

Forest Practices Board

BC'S INDEPENDENT WATCHDOG FOR SOUND FOREST & RANGE PRACTICES

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Glossary of Terms

Aerial ignition:[i] Ignition of fuels by dropping incendiary devices or materials from aircraft.

Backfire:[ii] Backfiring is the same as burning off, but on a much larger scale. The aim of backfiring is to deprive the fire front of as much fuel as possible in as short a time as possible. Backfiring is used to reduce fire intensity, spotting and forward rate of spread. It can also improve visibility for air attack by drawing smoke away from drop zones where tankers will apply retardant.

Broadcast burning:[i] Intentional burning of debris on a designated unit of land, where the fuel has not been piled or windrowed, allowing fire to spread freely over the entire area.

Burning off:[i] A fire suppression operation in which fire is set to consume islands of unburned fuel inside the fire perimeter, usually during a mop-up operation.

Burning out:[i] A fire suppression operation where fire is set along the inside edge of a control line or natural barrier to consume unburned fuel between the line and the fire perimeter, thereby reinforcing the existing line and speeding up the control effort. Generally, a limited, small-scale routine operation as opposed to backfiring.

Control line:[i] All constructed or natural fire barriers and treated fire perimeter used to control or contain a fire.

Direct attack:[iii] A suppression method for wildfires that are low-intensity and pose minimal risk to the safety of firefighters. This involves setting up control lines adjacent to the fire. Firefighters, aircraft and heavy equipment work in close proximity to the wildfire's perimeter to build these lines and extinguish flames.

Fine fuels:[i] Fuels that dry quickly ignite readily and are consumed rapidly by fire. Examples include: cured grass, fallen leaves, needles, and small twigs.

Fine Fuel Moisture Code:[i] A numerical rating of the moisture content of litter and other cured fine fuels. This code indicates the relative ease of ignition and flammability of fine fuel.

Fire behaviour:[i] The manner in which fuel ignites, flame develops, and fire spreads and exhibits other related phenomena as determined by the interaction of fuels, weather, and topography.

Fireguard:[i] A strategically planned barrier, either manually or mechanically constructed, intended to stop or slow the rate of spread of a fire, and from which suppression action is carried out to control a fire. The constructed portion of a control line.

Fire weather:[i] Collectively, those weather parameters that influence fire occurrence and subsequent fire behaviour (for example, dry-bulb temperature, relative humidity, wind speed and direction, precipitation, atmospheric stability, winds aloft).

Fire weather forecast:[i] A prediction of the future state of the atmosphere prepared specifically to meet the needs of fire management in fire suppression and prescribed burning operations. Two types of forecasts are most common: 1. The zone or area weather forecast is issued on a regular basis during the fire season for a particular geographical region and/or one or more fire weather stations. (…) 2. A spot weather forecast is issued to fit the time, topography, and weather of a specific campaign fire location or prescribed fire site. These forecasts are issued on request and are more detailed, timely, and specific than zone or area weather forecasts.

Fuel Moisture Content:[i] The amount of water present in fuel is generally expressed as a percentage of the fuel's dry weight when thoroughly dried at 100 degrees Celsius.

Ground ignition:[iv] The ignition of fuels by using incendiary devices or materials at ground level.

Head fire:[i] That portion of the fire perimeter having the greatest rate of spread and fire intensity which is generally on the downwind and/or upslope part of the fire.

Head fire intensity:[i] The rate of heat energy released at the head of the fire.

Ignition mission plan:[iv] Form required for documenting ignition operations at the basic aerial and advanced ignition levels.

Ignition specialist:[i] The person responsible for directing and supervising all aspects of an ignition team in the performance of tactical ignition operational assignments on wildfires and prescribed burns.

Ignition trainee:[iv] Personnel selected by their home fire centre to be trained and mentored in advanced ignition operations.

Indirect attack:[i] A method whereby the control line is strategically located to take advantage of favourable terrain and natural breaks in advance of the fire perimeter and the intervening strip is usually burned out or backfired.

Initial Spread Index:[i] A numerical rating related to the expected rate of fire spread. It combines the effects of wind and Fine Fuel Moisture Code on the rate of spread but excludes the influence of variable quantities of fuel.

Planned ignition:[iv] Any planned use of fire to remove forest fuel from an area. Activities include burning off, burning out, backfiring (back burns), and resource management open fire/prescribed burning.

Plastic Sphere Dispenser:[iv] A specialized ignition device that releases plastic spheres with a delayed ignition to ignite forest fuels (aerial or ground application devices are available).

Prescribed fire:[v] The knowledgeable and controlled application of fire to a specific area to accomplish planned resource management objectives. These fires are managed in such a way as to minimize the emission of smoke and maximize the benefits to the site.

Rate of spread:[i] The speed at which a fire extends its horizontal dimensions, expressed in terms of distance per unit of time. Generally thought of in terms of a fire's forward movement or head fire rate of spread, but also applicable to back fire and flank fire rates of spread.

Spot fire:[v] A spot fire is one that is less than 0.01 hectares (10 metres by 10 metres).

Spotting:[v] A wildfire produces burning embers called firebrands. These firebrands are carried by the surface wind, a fire whirl and/or convection column and fall beyond the main fire perimeter, resulting in spot fires.

Values at risk:[i] The specific or collective set of natural resources and man-made improvements/developments that have measurable or intrinsic worth and that could or may be destroyed or otherwise altered by fire in any given area.

Wildfire:[v] An unplanned fire—including unauthorized human-caused fires—occurring on forest or range lands, burning forest vegetation, grass, brush, scrub, peat lands, or a prescribed fire set under regulation which spreads beyond the area authorized for burning.

Introduction

The Complaint

In November 2023, the Forest Practices Board (Board) received a complaint from three Gun Lake residents (the complainants) about BC Wildfire Service's (BCWS) use of planned ignitions on the Downton Lake wildfire in August 2023. The complainants believe the planned ignitions were inappropriate and destroyed more than 40 houses on the west side of Gun Lake.

For relief, the complainants requested an investigation into BCWS's decision-making process for conducting the planned ignitions, accountability for denying resident firefighters the opportunity to help, and a review of related practices, including community input. The complainants also wanted policy changes for how BCWS conducts planned ignitions. They demanded that BCWS take specific steps[1] before undertaking planned ignitions.

After receiving the complaint, the Board worked with the complainants to clarify the focus of the issues. In this investigation, the Board considered whether BCWS complied with fire control requirements set out in the *Wildfire Act* and evaluated the reasonableness of BCWS's decision to conduct a planned ignition in the vicinity of the complainants' properties on August 1, 2023.

What is a planned ignition?

A planned ignition is a deliberate use of fire in an emergency situation to remove unburned fuel from an area, typically between a control line and the wildfire. Burning this fuel helps secure control lines, contain the fire, and create a more uniform and manageable fire edge, enhancing efficiency and safety in fire suppression efforts. Planned ignitions are also known as backfire, burn-off, controlled ignition, or controlled burn.

Background

Location

Gun Lake is about 100 kilometres west of Lillooet. It covers about 15 square kilometres and is located between the base of Mount Penrose, Downton Lake, and Carpenter Lake. Gun Lake lies within the territories of the ʔEsdilagh First Nation Government (Alexandria), the N'Quatqua First Nation, the T'it'q'et First Nation, the Tl'esqox First Nation (Toosey First Nation), the Tl'etinqox Government (Anaham), the Tsal'alh First Nation, the Tŝideldel First Nation (Alexis Creek), the Whispering Pines/Clinton Indian Band, the Xeni Gwet'in First Nations Government, and the Xwisten (Bridge River Indian Band). The Board recognizes the ongoing importance of their historical relationship with the land.

[1] Consult with residents to determine wind patterns and forest fuel loading; initiate evacuation orders to ensure residents' safety, and have structure protection crews and air support in place and on standby.

The Downton Lake wildfire, caused by lightning, was discovered on July 13, 2023. It began on the north side of Downton Lake (Figure 1), about 10 kilometres west of Gold Bridge. The wildfire became part of the Bendor Range Complex, which included the Casper Creek, Blackhills and Stein Mountain wildfires (Figure 2).

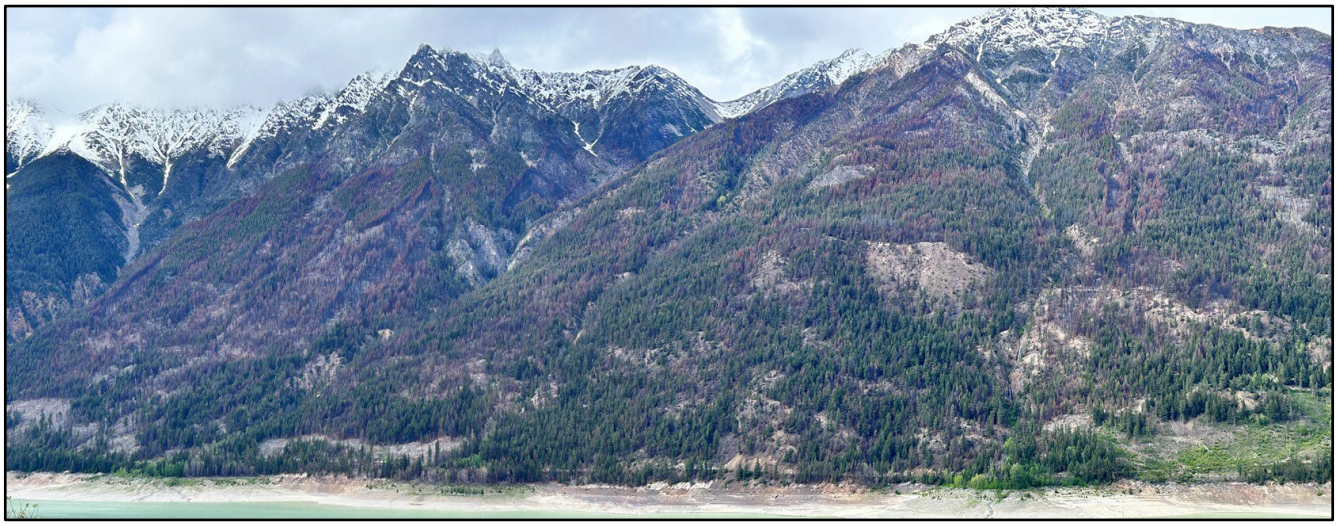

Figure 1. This area above Downton Lake is where the wildfire started in mid-July 2023. (*Photo taken on May 28, 2024.)*

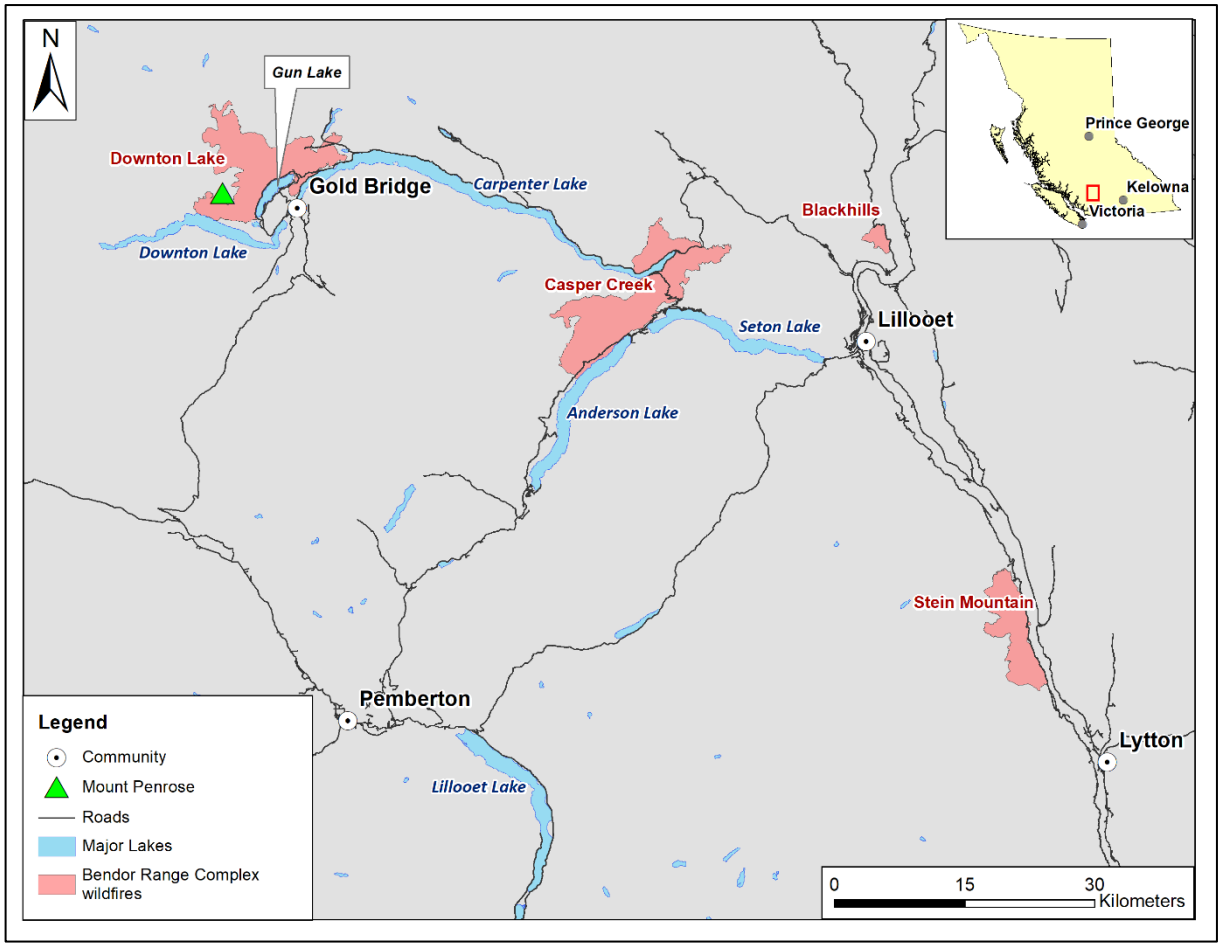

Figure 2. The Bendor Range Complex consisted of four wildfires, along with their respective final burned areas.

The Downton Lake wildfire occurred in a mountainous region between the Coast Mountains and the Chilcotin Ranges. The terrain is characterized by steep slopes and avalanche chutes, which pose challenges for fighting wildfires. The use of heavy equipment, such as bulldozers, was restricted to the lower sections of the slopes. Ground crews worked in the area but faced challenges fighting wildfires due to the terrain, heavy fuel loading and limited water availability. As a result, BCWS told the Board that direct attack strategies would not be effective in this region.

Starting BCWS's Fire Control Response

On July 26, 2023, BCWS established an Incident Management Team to take command of the Bendor Range complex, which included the Downton Lake wildfire. BCWS employed various suppression tactics[2] to manage the Downton Lake wildfire. They evaluated the feasibility of planned ignitions in areas where direct attack was not possible due to safety concerns and terrain limitations. A planned ignition is an indirect suppression tactic that aims to remove or reduce forest fuel from an area ahead of an advancing wildfire. This may involve burning off, burning out, backfiring (back burns), broadcast burning, or combining these methods. BCWS may create new or use existing natural or man-made barriers or both as control lines to anchor planned ignitions.

Following BCWS's recommendations, the Squamish-Lillooet Regional District (SLRD) issued evacuation alerts and orders in the areas threatened by the wildfire.[3] *Appendix 1* lists the SLRD evacuation alerts and orders issued in July and August of 2023 for the Downton Lake wildfire.

BCWS prepared an ignition mission plan and scheduled a planned ignition on the Downton Lake side of Mount Penrose for July 29. The eastern perimeter of the ignition was located approximately 1.2 kilometres west of the closest Gun Lake homes. BCWS established control lines to the northeast and southeast of the fire perimeter by using an avalanche chute and bulldozed machine guards (Figure 3). BCWS's goal was to prevent the wildfire from spreading beyond these lines to the south and northeast, and to reduce the fire's intensity as it spread towards the control lines. On July 29, BCWS started the planned ignition by conducting some test burns. However, BCWS had to abort the mission due to a problem with brand-new equipment used for aerial ignitions. After replacing the equipment, BCWS attempted to proceed with the planned ignition on July 31. By then, however, the wildfire had already crossed the avalanche chute and was approaching Gun Lake's southwestern shoreline, so BCWS decided not to proceed that day.

[2] When a direct attack on a wildfire is not possible, for example, due to topography, fuel type or rate of spread, BCWS shifts to indirect attack methods, but neither method guarantees success.

[3] An evacuation alert indicates that residents should be ready to leave their property at a moment's notice. In contrast, an evacuation order requires residents to leave the area immediately and prohibits them from returning to the affected area until it is safe to do so.

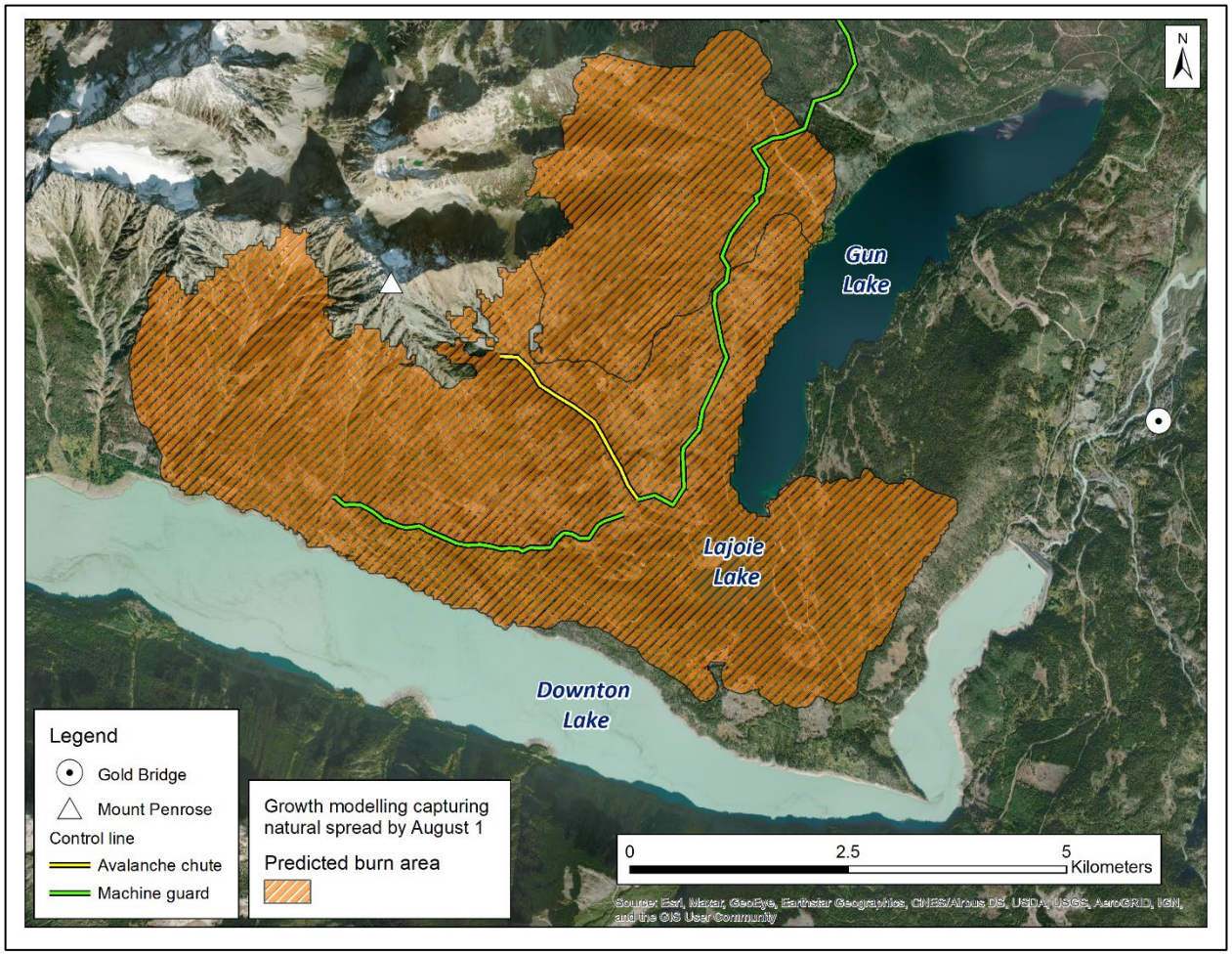

Figure 3. BCWS's predicted burn area and wildfire growth between July 31 and August 1, 2023

Conducting a Planned Ignition on August 1

After evaluating the fire's growth and behaviour on July 31, BCWS revised the July 29 ignition mission plan because of the wildfire's increased size. The revised plan used the established control lines except for the avalanche chute. BCWS conducted planned ignitions by air and on the ground on the morning of August 1, but had to stop the planned ignitions west of the avalanche chute in the early afternoon because the weather and winds changed and pushed the wildfire toward Gun Lake's southwestern shoreline. The objective of this planned ignition mission was to prevent the predicted fire growth on August 1 from reaching its full natural potential, which would have encompassed almost the entire southwestern shoreline of Lajoie and Gun lakes and would have approached the community of Gold Bridge (Figure 3). BCWS believed that this outcome was inevitable without any suppression efforts. The details of the August 1 planned ignition are covered in the *investigation findings* section of this report.

Conditions in Mid-August

Conditions in the southern interior of BC remained hot and dry from the beginning to the middle of August. Between August 15 and 18, BCWS told the Board that over 40 new temperature records were set across the province. The August heatwave was followed by a dry cold front spreading strong gusting winds of 40 to 60 kilometres per hour for 24 hours from BC's northwest through the interior before passing through the province's southeast corner. Following this extreme heat and strong wind event, many wildfires displayed extreme fire behaviour and spread rapidly. The cold front on August 17 and 18 significantly increased the size of the Downton Lake wildfire and its impact on the Gun Lake community.

BCWS conducted a 50-hectare planned ignition near Walker Creek on August 12. However, this planned ignition did not materially increase the wildfire's size (Figure 4). While the complainants were concerned about planned ignitions in the lead-up to the cold front, BCWS did not conduct any planned ignitions between August 16 and 18. BCWS determined that igniting additional fires would be too risky due to the extreme fire behaviour predicted during and after the cold front passing through the area affected by the Downton Lake wildfire.

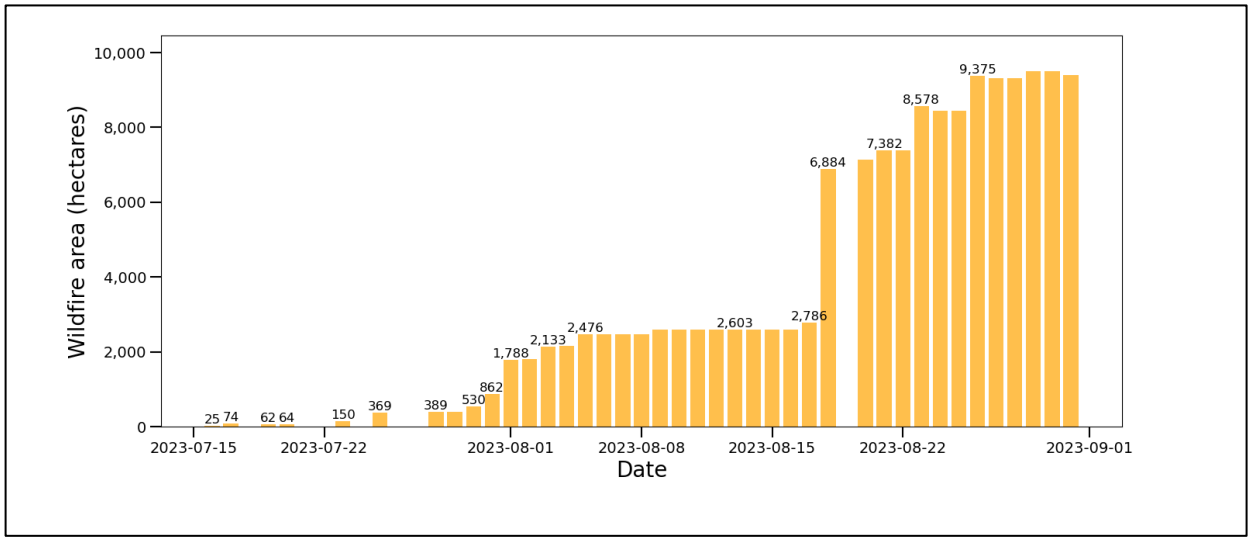

Figure 4. The estimated area of the Downton Lake wildfire between July 15 and August 31, 2023. The wildfire grew significantly on August 1 and August 18. Missing bars on certain dates mean no area change or no new area was recorded.

The Wildfire's Impact in August

According to the SLRD's damage statistics, the devastating wildfire destroyed 43 properties (3 on August 1 and 40 more on August 17-18), with an additional 13 properties suffering partial damage to secondary structures (*Appendix 1*). Despite these significant losses, 246 properties in the Gun Lake and Lajoie Lake areas were spared from the wildfire's impact.

BCWS announced the Downton Lake wildfire was out in late October, almost 100 days after it started. The final fire perimeter covered about 9600 hectares (Figure 7 in *Appendix 2*).

Relevant Legislation

The relevant legislation includes sections 9 and 18, which are in Part 2 of the *Wildfire Act:*

Section 9 – Government may carry out fire control

9(1) The government may enter on any land and carry out fire control if an official considers that a fire on or near the land endangers life or threatens forest land or grass land.

Section 18 – Right of government to use fire

18 The minister may cause fire on, or allow fire to be introduced onto, Crown land, other than Crown land leased from the government, for the purpose of

(a) reducing the likelihood of unwanted fire on the area,

(b) increasing public safety, …

Investigation Findings

In this investigation, the Board considered whether BCWS complied with the fire control requirements set out in the *Wildfire Act* and evaluated the reasonableness of BCWS's decision to conduct a planned ignition in the vicinity of the complainants' properties on August 1, 2023.

Did BCWS comply with sections 9(1) and 18 of the Wildfire Act when it conducted a planned ignition in the vicinity of the complainants' residences on August 1, 2023?

BCWS derives its authority for fire control and use of fire in its work from all sections of Part 2 of the *Wildfire Act.* Section 9(1) of the *Wildfire Act* permits government to enter any land and carry out fire control if an official considers that a fire on or near the land endangers life or threatens forest land or grassland. The fire analysis dated July 19, 2023, authorized BCWS to carry out fire control because a government official considered that the Downton Lake wildfire put the following values at risk: public safety, infrastructure and private assets, high environmental values, timber resources and recreation. Government has broad discretion to carry out fire control. This is consistent with the Board's conclusion in a previous complaint investigation report.[vi]

Section 18 of the *Wildfire Act* gives government the right to use fire. Government may introduce or cause fire on Crown land (excluding leased Crown land) to reduce unwanted fires, increase public safety, enhance forest or grassland resources and values, or achieve other government objectives.

In summary, a BCWS official considered that the Downton Lake wildfire endangered life and threatened forest land, enabling BCWS to carry out fire control. Additionally, a designated BCWS official decided to introduce fire onto Crown land to reduce the likelihood of unwanted fire in the area between the Downton Lake wildfire and local communities.

Finding

BCWS complied with sections 9(1) and 18 of the *Wildfire Act* when it conducted a planned ignition in the vicinity of the complainants' residences on August 1, 2023.

Was BCWS's decision to conduct a planned ignition in the vicinity of the complainants' residences on August 1, 2023, reasonable?

At the start of the investigation in December 2023, the complainants informed the Board that they believed BCWS had conducted planned ignitions during two events when the Downton Lake wildfire expanded significantly: one on August 1, 2023, and another from August 17 to 18, 2023. While the complainants expressed concerns about planned ignitions leading up to the cold front weather event on August 17 to 18, BCWS confirmed that no planned ignitions took place between August 16 and 18. Therefore, the investigation concentrated on the planned ignition that occurred on August 1.

The Board evaluated the reasonableness of BCWS's decision to carry out a planned ignition on August 1, 2023, in the vicinity of the complainants' properties. In making this assessment, the Board considered: 1) whether BCWS's decision was consistent with sound forest practices, 2) whether it was based on an adequate assessment of available information, and 3) whether it achieved the intent of the legislation.

Figure 5. The area burned northwest of Gun Lake at the base of Mount Penrose. BCWS photo taken on August 7, 2023. One cannot distinguish between areas affected by natural fire and the planned ignition.

Consistency with Sound Forest Practices

Sound forest practices involve practices that align with the intent of British Columbia's forest practices legislation. They are generally accepted practices that are consistent with current policies, procedures, and technical requirements, and are planned and carried out by qualified people.

Planned ignitions involve the intentional use of fire to manage forest fuels and control wildfires. They can help reduce the risk of uncontrolled fires by removing or decreasing fuel near an active wildfire, protecting valuable resources. When carried out at the right time and in suitable locations, the Board believes that planned ignitions contribute to sound forest management. This investigation assessed whether BCWS's planned ignitions were consistent with sound forest practices.

Fire Analysis

A fire analysis is part of government's process for authorizing BCWS to implement fire control measures. This authorization followed a government official's determination that the Downton Lake wildfire threatened significant values. The analysis proposed using planned ignitions as a strategy to manage the wildfire. The analysis included a recommendation to prepare an ignition mission plan as a contingency if the fire spread toward Gun Lake and Gold Bridge. It also suggested that consulting an ignition specialist would be beneficial in developing this plan.

The fire analysis identified a trigger point on the south-southwest-facing slope above Downton Lake, and BCWS planned to adjust its response strategy if the wildfire reached that point. This approach aligned with sound forest management practices, as the fire control objective focused on protecting public safety, infrastructure and natural resources by preventing the fire's spread eastward toward Gun Lake. To achieve these goals, BCWS conducted planned ignitions to reduce flammable forest fuel on the eastern side of Mount Penrose and mid-slope above Gun Lake.

Ignition Mission Plan

BCWS details the reason, objective, strategy and conditions for carrying out a planned ignition in an ignition mission plan. *Appendix 3* summarizes the sections from BCWS's August 1 ignition mission plan. The plan includes a map, a "Go-No-Go" checklist and a post-ignition summary.

Between July 26 and 28, a BCWS team reviewed options for conducting a planned ignition on the Downton Lake wildfire. The team consisted of an ignition specialist, the Bendor Range Complex's Fire Behaviour Analyst (the analyst) and the operations chief.[4] Following this work, the ignition specialist prepared an ignition mission plan on July 28, for a burn operation scheduled on the following day. The purpose of the burn was to tie the edge of the fire into an avalanche chute on the eastern flank and connect it to a control line on the south, thereby preventing further spread towards the communities of Gun Lake and Gold Bridge.

[4] The operations chief is also an ignition specialist trainee.

While BCWS started the planned ignition on that day with test burns in unburnt islands within the previously burned area, it had to abort the mission due to faulty equipment.[5] The ignition specialist left to assist with another wildfire complex on July 30. The operations chief updated the July 28 ignition mission plan based on the wildfire's progress on the morning of August 1.

The original and the updated ignition plans share the same rationale, objectives and strategies. Furthermore, the parameters for burning—including weather and fuel indices—along with the hazard mitigation strategies, preparatory work required and the probability of success were consistent across the plans. However, the two plans differ in regard to the area affected by the wildfire. The revised plan used the established control lines except for the avalanche chute, which the wildfire had crossed. The revised plan also accounted for the reduced amount of unburned forest remaining between the wildfire and the shoreline of Gun Lake.

Before conducting the planned ignition on August 1, BCWS prepared a plan outlining the ignition's purpose, objectives, strategy, conditions and associated risks. The aim of the plan was to protect Gun Lake's communities, the western shoreline, Gold Bridge and properties surrounding Lajoie Lake, which aligns with the fire control objectives outlined in the fire analysis. The plan also detailed safeguards to protect the resources BCWS sought to preserve. The details of the planned ignition on August 1 are discussed in the next section.

In summary, BCWS's planned ignition on August 1 was consistent with sound forest management practices. Planned ignitions are an accepted wildfire suppression tactic. BCWS's fire analysis and ignition plans focused on managing wildfire risks while safeguarding communities and natural resources. The process followed established protocols, with documentation and risk assessments. Despite disruptions from equipment issues and staffing changes, BCWS successfully adapted the plan to maintain its goal of reducing wildfire threats.

Adequate Assessment of Available Information

The investigation evaluated whether BCWS adequately assessed the available information before and during the planned ignition on August 1, 2023.

Fire Behaviour

BCWS's analyst prepared a daily forecast with wildfire-specific weather information, also known as fire weather reports, based on two nearby weather stations.[6] These reports combined weather information with fire indices to provide fire behaviour advisories and warnings. For example, it predicted the intensity of the head fire in specific fuel types over the day. The forecasts also detailed the expected wildfire's rate of spread, intensity class and fire type, such as surface or crown fires. Additionally, the forecasts helped BCWS determine if conditions were favourable for planned ignitions. The summary in *Appendix 3* outlines how the sections of the ignition mission plan relate to the predicted fire behaviour.

[5] The new Plastic Sphere Dispenser (PSD) machine that was mounted on the helicopter stopped working.

[6] The Five Mile and the Gwyneth Lake weather stations. The location of the weather stations is available via this BC government website: Interactive map of weather station locations [last accessed: April 14, 2025].

The analyst also used the fire behaviour information to forecast the wildfire's growth in the coming days. The analyst incorporated field observations to enhance these predictions, adjusting the observed fire behaviour and fuel types. The forecast for August 1 indicated strong, gusty winds expected overnight into the morning of August 2. As a result, the forecast advised against conducting planned ignitions starting in the afternoon of August 1.

Sharing Information with Supporting Resources

BCWS's primary tool for information sharing is the daily incident action plan (IAP). The IAP's main objective is to ensure that all staff on the Bendor Range Complex focus on protecting and minimizing the impact on critical values, including human life and safety, critical infrastructure, and private property. BCWS crews and contractors depend on the information provided in the IAP to plan and coordinate their activities. The IAP includes daily updates on the following:

- Wildfire status and size
- Fire behaviour forecasts for each wildfire in the complex
- Safety protocols, danger tree information, and communication plans
- Air operations and crew assignment lists
- Contact lists and organizational charts

Assessing Conditions During the August 1 Planned Ignition

BCWS conducted the planned ignition on August 1, following the parameters set out in the ignition mission plan. These parameters were based on the observed conditions at the Five Mile weather station. BCWS completed the Go-No-Go Checklist outlined in the ignition mission plan, marking all applicable items as "Yes."

During a morning meeting on August 1, 2023, hosted by the Ministry of Emergency Management and Climate Readiness, BCWS recommended that the SLRD issue an evacuation order for the Gun Lake and Lajoie Lake areas. The SLRD subsequently issued the evacuation order at 1 PM, instructing evacuees to seek emergency support services in Lillooet.[7]

BCWS began aerial ignitions at 10:30 AM on August 1. BCWS ground crews assisted with ignitions and ensured fire spotting did not extend beyond the control line. BCWS operated within the parameters outlined in the ignition mission plan throughout the ignition period.

The southwesterly winds remained below the 20 kilometres per hour threshold, averaging between 6 and 8 kilometres per hour, with gusts up to 16 kilometres per hour. The Fine Fuel Moisture Code, which indicates how easily fine fuels can ignite, stayed below the threshold of 93, increasing from 90 to 91 by the end of the period. Similarly, the Initial Spread Index, which rates the expected rate of wildfire spread, remained below the threshold of 12 stated in the ignition mission plan, rising from 5 to 7 by the end of the timeframe.

[7] The SLRD updated the order at 3:30 PM on that same day to include an additional option for evacuees to access emergency support services in Whistler.

BCWS halted aerial ignitions at 2 PM, after the helicopter landed for refuelling. BCWS decided not to proceed due to changing wind conditions and fire behaviour. The completed ignition area was limited to the west of the Mount Penrose avalanche chute and covered approximately half of the planned area (*Figure 6*).

At 3 PM, the fire behaviour worsened due to increased winds, shifting wind directions and spotting along the control line. This change in wind patterns occurred earlier than expected. The IAP's fire behaviour forecast for August 1 had predicted strong gusty winds overnight and into the early morning of August 2.

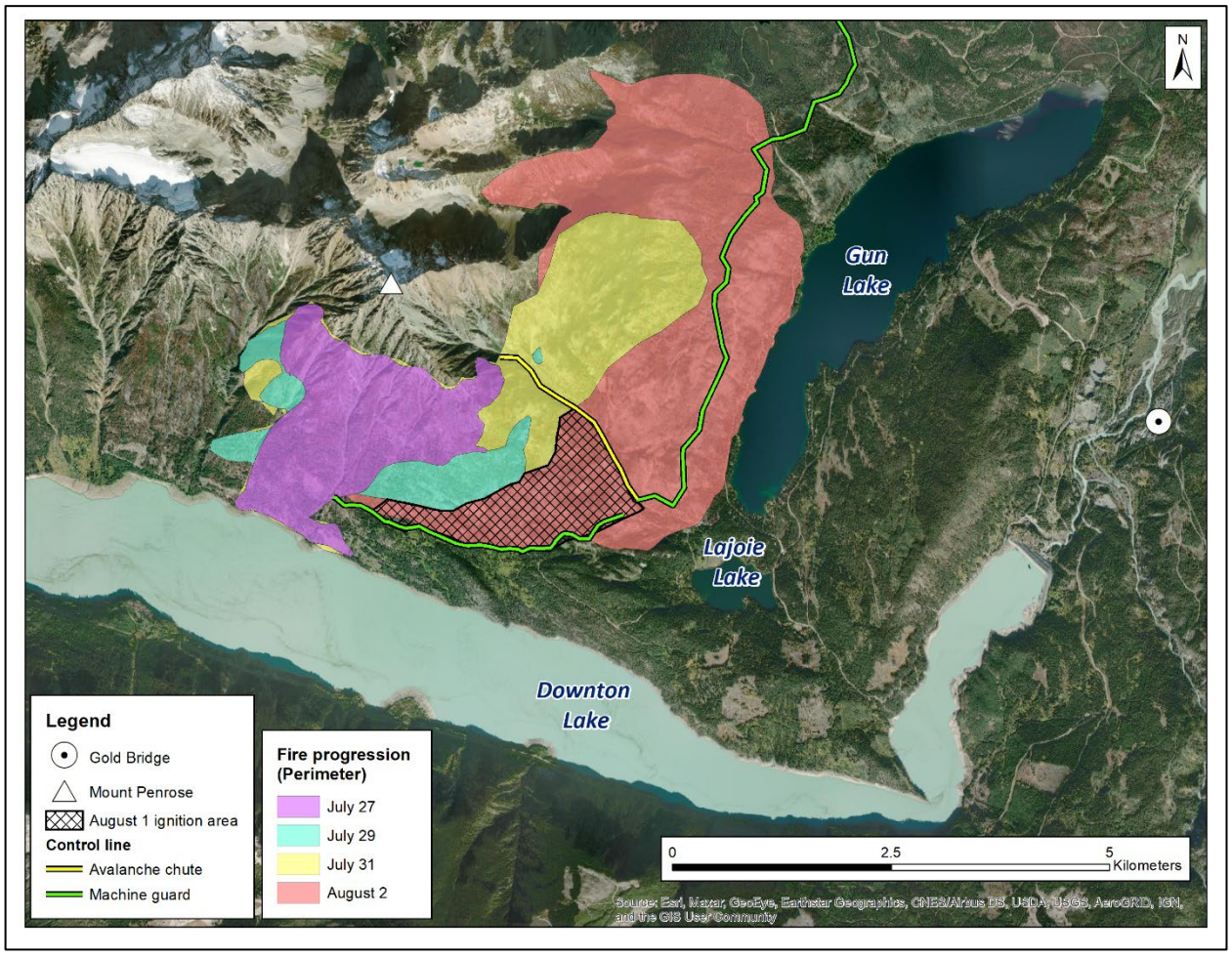

Figure 6. Actual ignition area on August 1, 2023, and wildfire progression between July 23 and August 2, 2023. Most homes are located along the perimeter of Gun Lake and Lajoie Lake.

BCWS notified the SLRD of the change in the wildfire situation. By 4 PM, ground crews retreated to safety zones as BCWS observed strong downhill winds shifting the wildfire's direction towards Gun Lake. Downhill spotting crossed the control lines, and spot fires began to merge. Weather conditions continued to worsen the wildfire situation in the afternoon. Westerly winds averaged up to 15 kilometres per hour, and gusts reached 35 kilometres per hour. The Initial Spread Index reached 12 at 4 PM and remained at 13 between 6 and 8 PM. The Fine Fuel Moisture Content reached 93 by 6 PM and stayed at this level until midnight. After 8 PM, the wind direction shifted to the northwest.

Although the August 1 fire behaviour forecast warned of strong overnight winds, conditions during the ignition period remained within acceptable limits. However, unexpected shifts in wind patterns accelerated fire behaviour earlier than anticipated. BCWS responded by halting aerial ignitions at 2 PM and notifying affected parties as the conditions worsened.

BCWS adequately assessed the available information before and during the planned ignition on August 1, 2023. BCWS followed a structured approach, utilizing fire weather forecasts, wildfire growth predictions, and real-time field observations to guide decision-making. The ignition mission plan, supported by the Go-No-Go Checklist, ensured that key thresholds were met before proceeding and during the planned ignition.

Achieves the Intent of the Legislation

In mid-July 2023, BCWS designated the Downton Lake wildfire as out of control, and it remained that way until the end of August. By July 27, the wildfire was rapidly approaching the communities of Gun Lake, Lajoie Lake and Gold Bridge.

One of the primary goals of the *Wildfire Act* is to prioritize public safety. The fire control objectives set by BCWS for the Downton Lake wildfire, as detailed in the fire analysis, focused on protecting human life and communities. This aligned with the goals outlined in the ignition mission plan, which aimed to prevent the wildfire from spreading beyond the established control lines to the south towards the Gun and Lajoie Lake communities and to attempt to reduce the fire's intensity as it progressed eastward between the current fire perimeter and the control lines.

BCWS achieved the intent of the legislation by conducting the planned ignition mission. BCWS weighed the potential risks of the ignition against the need to prevent the anticipated fire growth on August 1 from reaching its full natural potential. Allowing this fire growth could have seriously threatened the communities at Lajoie Lake, the southwestern shoreline of Gun Lake, and the community of Gold Bridge (Figure 3). By recognizing that such an outcome would be inevitable without suppression efforts, BCWS aimed to reduce risks and protect critical areas. This approach fulfilled the legislative intent to safeguard communities and natural resources.

Finding

BCWS's decision to conduct a planned ignition in the vicinity of the complainants' residences on August 1, 2023, was reasonable. The decision was consistent with sound forest practices, intended to achieve the intent of the *Wildfire Act*, and based on an adequate assessment of available information.

Conclusions

The 2023 Downton Lake wildfire caused significant damage, resulting in severe losses for the complainants and many others affected by the incident.

Sections 9(1) and 18 of the *Wildfire Act* are clear—they provide government with the authority to carry out fire control and use planned ignitions to protect lives and forest land. BCWS followed these rules, which allowed it to manage the Downton Lake wildfire and introduce fire as a necessary measure, given the threat posed to both lives and forested areas.

On August 1, BCWS conducted a planned ignition because it believed that without this action, the wildfire would have spread to nearly the entire southwestern shoreline of Lajoie Lake and Gun Lake and potentially threatened the community of Gold Bridge. Wildfire suppression efforts require a careful balance between risk and intended outcomes. Even with careful planning and execution, the effectiveness of suppression efforts in managing severe wildfires has a degree of uncertainty.

In this investigation, the Board evaluated whether BCWS's decision to carry out fire control and use planned ignitions in the vicinity of the complainants' properties on August 1 was reasonable. The Board believes that BCWS's decision was reasonable because it was consistent with sound forest practices, achieved the intent of the legislation and was based on an adequate assessment of available information.

Appendix 1 – SLRD Evacuation Alerts and Orders and Damage Statistics

Table 1. Relevant SLRD Alerts and Orders for this Complaint

START DATE & TIME	EVACUATION TYPE	AREA AFFECTED
July 23, 2023, at 16:30	Evacuation Alert	All properties in the area of Lajoie Lake and Gun Lake.
August 1, 2023, at 13:00	Evacuation Order	All properties in the area of Lajoie Lake and Gun Lake.
August 1, 2023, at 21:00	Evacuation Alert	All properties north of Downton Lake, north of Carpenter Lake/Reservoir, and west of Tyaughton Creek, that are not already on evacuation order.
August 2, 2023, at 17:30	Expanded Evacuation Alert	• All properties from Gold Bridge to Brexton and South toward Gwyneth Lake Resource Road as well as North of Tyaughton Lake. • All properties North of Downton Lake, North of Carpenter Lake/Reservoir, and West of Tyaughton Creek, that are not already on Evacuation Order.
August 17, 2023, at 19:00	Evacuation Order	All SLRD properties in the Slim Creek, Tyaughton Lake and Gun Creek Road areas.
August 17, 2023, at 20:00	Evacuation Alert	All SLRD properties north of Carpenter Lake and in the Marshall Lake area.
August 18, 2023, at 13:00	Evacuation Order	• Gun Lake, Lajoie Lake, and Slim Creek areas, • Marshall Lake and north of Carpenter Lake areas, • Gold Bridge, Brexton and Bralorne areas, and • Tyaughton Lake and Gun Creek Road areas.

SLRD Damage Statistics

A total of 274 properties on Gun Lake and 28 properties on Lajoie Lake were in the vicinity of the wildfire. According to the SLRD, by August 1, the wildfire had damaged nine properties—destroying all structures on three of them, including one co-owned by a complainant. Additionally, the wildfire inflicted damage on secondary structures at six other properties. While one complainant did not lose any structures, they reported that the wildfire burned most of the trees on their property.

On August 17 and 18, the SLRD reported that the wildfire damaged 47 properties, completely destroying all structures on 40 of these properties, including one owned by another complainant. The remaining seven properties sustained damage to their secondary structures. The wildfires did not affect 218 properties along the shoreline of Gun Lake and 28 properties near Lajoie Lake.

Appendix 2 – Final Wildfire Perimeter and Burn Severity Map

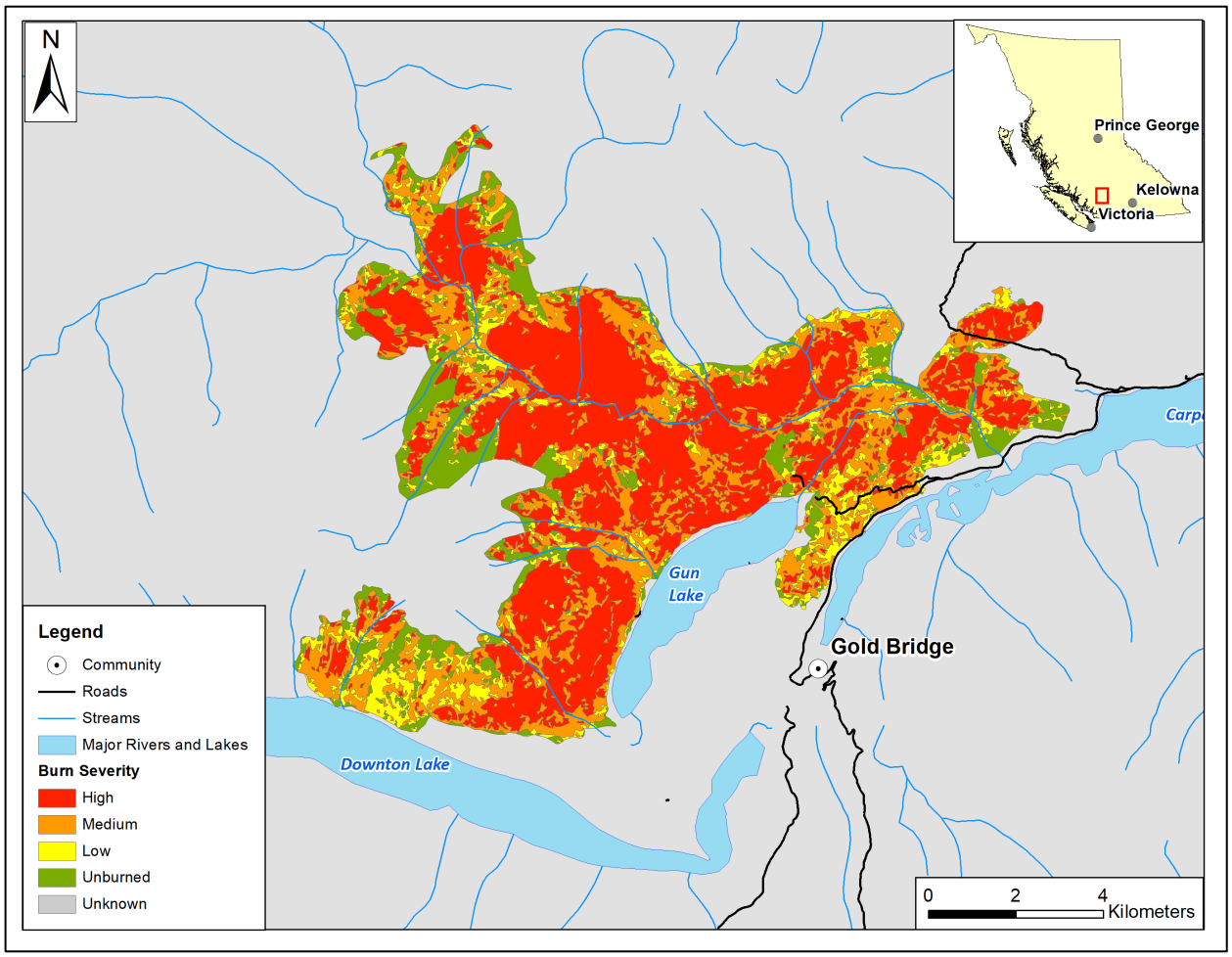

Figure 7. Downton Lake wildfire burn severity with final perimeter as of October 20, 2023.

Appendix 3 – Summary of BCWS's August 1 Ignition Mission Plan

SECTION	SUMMARIZED DESCRIPTION
Reason for Burn	Protecting the community of Gun Lake with about 270 private properties with primary or secondary structures and critical dam infrastructure
Objective(s)	1. Prevent the fire from spreading beyond the control lines south of it. Failure will reduce options and space to manage and may result in a higher risk of major damage. 2. Ensure the fire burns less intensely between the current fire perimeter and the control lines. This will help minimize long-term damage to the landscape, including forest health, erosion, and recreational values.
Strategy	Use both hand ignition and aerial ignition methods. Use the Red Dragon[8] with a slower ball speed to start a lower-intensity fire, and support this with hand crews working along the guard to clean up any areas that need it.
Parameters for Burning	***Intensity Class:*** The fire's intensity should not exceed what is currently within the fire's perimeter during ignition. Aim for a rank 3/4 fire behaviour. A slower drop rate for the dispenser will create a more natural burn and lower intensity. ***Weather/Indices:*** The Initial Spread Index should be under 12, and the Fine Fuel Moisture Content should be under 93. ***Winds:*** Easterly winds are preferred, but the burn can proceed with South/southwest winds under 20 km/hr, if necessary. Easterly winds are ideal but rare, so we may have to work with southwesterly winds, which are common and can help with the burn. Avoid northwesterly winds, as they are challenging to manage. ***Timing:*** Conduct the burn before the fire crosses containment lines and when wind and indices are favourable. ***Time to Complete:*** 2 – 4 hours. ***Support Resources Needed:*** Use bucket support if needed to prevent spots from crossing containment lines or dozer guards. Ground crews should patrol roads for any issues with the slope.
Hazards/Special Concerns – Mitigation	If conditions become unfavourable, there is a risk of high-intensity crown fire and spotting. To reduce the fire's intensity, use a lower ball drop rate, place lines closer together, and ignite slowly.
Prep Work Needed	Prep work included setting up a contingency guard to handle the possibility of the fire crossing the avalanche chute and primary containment lines. Since the fire did cross the primary lines last night, the contingency lines will now be used. Aircraft and ground crews will be positioned to support the burn operations.
Probability of Success	Moderate.

[8] Red Dragon is the brand name of a specialized ignition device releasing plastic spheres with a delayed ignition to ignite forest fuels. Red Dragon is the ignition devise that malfunctioned during the July 29 ignition mission that BCWS aborted.

ENDNOTES

[i] Canadian Interagency Forest Fire Centre, 2022 Canadian Wildland Fire Glossary [last accessed: April 14, 2025].

[ii] BC government. 2017. Using fire to fight fire [last accessed: April 14, 2025].

[iii] BC Wildfire Service, 2024. Definition of 'Direct Attack' provided as part of this Board investigation.

[iv] BC Wildfire Service, 2019 Ignition Operations Manual.

[v] BC Wildfire Service, 2023 Wildfire Glossary [last accessed: April 14, 2025].

[vi] IRC249 - Fire Control near Manning Creek, March 2023, BC Forest Practices Board, Victoria, BC [last accessed: January 14, 2025].

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