

Fireline



Yukon Wildland Fire Management
2023 fire season in review





Single
Plains
Hotel

5286
5285

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Fireline is the Government of Yukon's Wildland Fire Management Branch annual magazine.

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Follow Wildland Fire on social media through Yukon Protective Services and online at Yukon.ca/Wildfires.

Cover

Firefighters supervise a prescribed burn in Duke Meadows.
Photo by Haley Ritchie

Opposite

A firefighter works on equipment in Eagle Plains.
Photo by David Brabec

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Firefighters walk the
fireline at a prescribed
burn in Duke Meadows.
Photo by Haley Ritchie



Minister's message

In 2023, more than any other season, Canadians were exposed to the realities of wildland fire, including smoke, evacuations and lost structures. Summers are longer and drier in many parts of the country, and the resulting wildfires are impacting more people and property. Here in the Yukon, the evacuations of Old Crow, Mayo, and the Eagle Gold Mine and a threat to homes in the Ibex Valley, resulted in many sleepless nights for residents and first responders. It all serves as a reminder of the changing reality of wildland fire and that the Yukon must prepare for more intense fire seasons.

The Yukon government is doing just that by strengthening partnerships with First Nations governments, municipalities and communities on risk-reduction strategies and making major progress on projects like the Whitehorse South Fuel Break. We are prepared.

We are grateful for the support of community leaders, First Nations governments and other response partners, like the Emergency Measures Organization, the Fire Marshal's Office, volunteer fire departments, and personnel from across government who spent time with the Wildland Fire Management team this past season or lent equipment and contracts. Most of all, a huge debt of gratitude is owed the Wildland Fire Management branch for all their work keeping Yukoners and our visitors safe. Whether it was your first year or your thirtieth, thank you for stepping up to the challenge of service. Your efforts are appreciated.

Richard Mostyn
Minister of Community Services



Thunderstruck

How lightning triangulation works

Lightning is the leading cause of wildfires in the Yukon, and since the Yukon boasts nearly 500,000 square kilometres of land, knowing where lightning strikes in real-time is important firefighting intel.

Using technology to pinpoint lightning strikes allows Wildland Fire Management an early chance to detect and respond to new fires.

How does lightning triangulation work? The Yukon relies on surface-based lightning sensors to provide lightning data. While data from one or two sensors can provide some information about a lightning strike, information from three sensors allows for triangulation—which gives the most accurate details. Three sensors, strategically placed in Whitehorse, Carmacks and Dawson, provide information as part of the Canadian Lightning Detection Network established by Environment Canada.

Many systems and emerging technologies exist for tracking lightning. While some jurisdictions use weather satellites, they don't provide a good angle to detect lightning in the Yukon.



Instead, surface-based lightning sensors use antennas to detect the electromagnetic pulses from lightning strikes. When there's too much energy in the sky, it is discharged as a massive and superheated spark of electricity called lightning. As lightning leaves the clouds and heads toward the ground, objects on the ground such as trees and buildings send up their own sparks to try to connect. Once the sparks from the sky and earth come together, a lightning

channel is formed where electricity rapidly bounces back and forth. This is when we view the visual aspect of lightning—the flash.

Depending on the strength of the pulse, strikes can be detected hundreds or thousands of kilometres away. In close to real-time—usually, thirty seconds or less—the lightning pulse data is processed, which determines the approximate location of the strike, the type of strike (lightning can travel cloud-to-cloud or cloud-to-ground), and whether the strike is negative or positive.

Cloud-to-ground strikes with positive polarity are the most likely to start wildfires because they have higher amperage and last longer than negative strikes. Lightning can also occur in conditions that don't involve thunderstorms. For example, electrically charged particulates from forest fires and volcanic eruptions can cause lightning.

Lightning strike locations can be combined with weather and topography observations to determine where a new start is likely.

This year, the Yukon started off very dry, but it wasn't getting much lightning—so there wasn't much fire activity. Starting in July, energetic thunderstorms began rolling in. The Talbot Creek fire (MA-033), East McQuesten fire (MA-011) and the Eagle River fire (OC-007) are all thought to have been caused by lightning.

In many cases, thunderstorms don't immediately cause fires. The power of a strike can ignite materials, but if conditions are not ideal, the smouldering vegetation will remain quiet. But several days to weeks later, if the weather becomes windy and dry, holdover fires caused by lightning can start growing.

By the time a fire is visible – with a smoke column, quick spread, and torching trees – it can already be too late for initial attack. Identifying and tracking lightning strikes is a tool we can use to try and predict where lightning-caused fires are most likely to start and catch them before they're a threat to communities. 🔥



Crew leader Ronan Hopkins lights piled slash during the winter at a treatment site in Whitehorse.

Photo by Haley Ritchie



Fire resiliency starts at home

FireSmart co-founder Alan Westhaver's insights on preparing homes for wildfire

Wildland-urban fire expert Alan Westhaver wants you to know that your home doesn't have to be a concrete bunker to survive a wildfire – if we can make our homes and communities more resistant to ignition.

“There's a difference between homes that are ignition resistant and homes that are fireproof. I'm not even sure the latter exists, but no question it's achievable to develop homes that are less vulnerable,” he told the audience during a visit to Whitehorse in May. “Burning embers are the trigger, not big flames.”

Westhaver was invited to the Yukon by the Wildfire Awareness Society and Yukon Wildland Fire managers to help promote fire resiliency during Emergency Preparedness Week. His visit included a tour of the Mary Lake Fuel Break with Wildland Fire staff and a public presentation at the Mount McIntyre Recreation Centre.

During his presentation, Westhaver dispelled some common myths about how homes ignite, when disasters occur and what's needed to prevent catastrophic losses.

“Some people think FireSmart suggests – ‘We have to live underground in a bunker, or in some kind of a sterile Walmart parking lot to be safe.’

I know I'd rather not. That's a misunderstanding,” he said. “I want to emphasize most actions to reduce risk are small, relatively inexpensive, or don't cost anything except our time.”

While replacing a roof or siding is an intimidating expense, there are many smaller solutions that are arguably more effective. Volatile shrubs, like juniper, shouldn't be beside a home. Keeping gutters clean, moving combustible materials and machines further away, trimming low branches of evergreens, and placing screens over vents are little changes that make a big difference.

In one example, Westhaver showed the difference between a wooden deck that was left fully intact, versus a deck that had burned because barbecue charcoal and fluid had been left behind. Keeping a property tidy, and free of dead leaves and needles, is vital to reducing risks.

The area from zero to 1.5 metres surrounding the home is the ultimate fuel break he said – nothing should burn there.

Westhaver helped create the original FireSmart program in 1990 and spent 27 years working in Parks Canada's wildland fire program.



His guidance is backed by science and hard-learned lessons from studying fires in places like Kelowna, Fort McMurray and Lytton. His presentation included dashcam footage showing how embers flood homes, igniting small spot fires in urban fuels, which then spread to vulnerable homes.

In a study published in 2017, Westhaver examined hundreds of homes affected by the 2016 fire in Fort McMurray in an effort to explain why some homes survived and others didn't. He found 81 per cent of homes that survived were rated "FireSmart" while around 60 per cent of the homes destroyed were rated with "Extreme hazard."

As more communities build within the boreal forest – an environment where fire has always existed – residents are looking to wildland fire personnel for protection. But Westhaver pointed out disasters only happen under the most extreme conditions, when the limits of firefighting are exceeded. As intense wildfire seasons become more common, homeowners and communities must protect themselves by becoming part of the solution.



"A fire resilient community bounces back faster. Things go back to normal with relatively little disruption," said Westhaver.

Becoming more resilient will take effort from a lot of different groups working together, including community associations, homeowners, businesses and government. But there's another big pay-off from fire resistant homes – "first responders are safer and more effective in dealing with fewer burning structures," said Westhaver. 🔥

Above

Alan Westhaver, left, talks with Wildland Fire Management staff during a tour of the Copper Haul Road Fuel Break.

Photo by Haley Ritchie



Fire season in review

Canada saw an explosive 2023 fire season. While early records were set in Alberta, British Columbia, Ontario and the Maritimes, the Yukon had a slow start to the season. However in a matter of weeks, the season that wouldn't start became the season that wouldn't end.

The total number of fires was 207, including several notable fires that impacted communities and transportation corridors while others triggered evacuations of the Victoria Gold mine, Old Crow and the Village of Mayo. At one point, evacuation notices were in place for the entire Silver Trail from just north of Stewart Crossing to Keno City.

Early in the season, a lull in fire activity allowed for spring prescribed burning, extensive training and crew exports to other jurisdictions. The Yukon saw very little fire activity between April and the end of June. In total, over 125 exported personnel helped manage challenging situations outside of the territory. Most of these resources travelled to Alberta and Quebec, but others were sent to British Columbia and the Northwest Territories.

In early July, WFM began to concentrate resources in the Yukon as conditions became hot and dry at home. A fire ban was implemented as

Yukoners noticed more wilderness fires on the landscape. The July 8 Takhini Bridge fire (XY-019), an unusual human-caused fire, resulted in an evacuation alert for the Ibx Valley and was the first sign of things to come later in the season.

Rain in southern Yukon eventually helped control XY-019, but warm and dry temperatures persisted elsewhere and brought extensive lightning to the Klondike, Tatchun and Northern Tutchone regions.

In August, intense resources were brought to bear to manage fires in central and northern Yukon. The national situation limited WFM's ability to import crews and hire helicopters. The East McQuesten fire (MA-011) threatened a major mine site, while the Talbot Creek fire (MA-033) took hold and quickly threatened the Village of Mayo. Old Crow experienced such persistent smoke that the community was evacuated by air.

With help from firefighters across Canada, MA-011 and MA-033 were eventually contained enough to lift evacuations. Record-breaking August temperatures kept regions alert. Officers continued to monitor notable fires until late September with access to extended crew resources. 🌟

Notable fires

Talbot Creek (MA-033)

Cause: Lightning
Report date: August 1
Response zone: Full
Size: 5,000 hectares

The Talbot Creek fire was started by lightning around 10 kilometres south of the Village of Mayo. It remained quiet there, burning away from town and slowed by a crew and helicopter bucketing until August 3, when it began growing to the north. The size of the fire and hilly terrain complicated the response. An evacuation alert was issued August 4, followed by an evacuation order two days later. As the community headed down the Silver Trail, volunteer fire and wildfire crews installed structure protection across Mayo as southerly winds pushed the fire towards the Stewart River.

Tension peaked on Sunday night. With the fire 4 kilometres away, ash and burnt pine needles were falling on the initial attack base as crews patrolled town on high alert to catch any spot fires. A shift in the wind pushed the fire west around 7 p.m., slowing the advance towards Mayo, but the fire continued to glow across the river throughout the night. Erratic weather, heavy smoke, wind and thunderstorms created an unpredictable few days as Yukon crews were joined by resources from Saskatchewan, Ontario, Nova Scotia and Newfoundland. They worked with aircraft and heavy equipment to defend the town.

As Mayo residents settled into accommodations in Whitehorse, fire information operations expanded to provide face-to-face updates for evacuees and community leaders. The Village of Mayo's volunteer fire department deserves special recognition for the quality of its on-the-ground updates during the evacuation.

Eventually rain and a weather downturn allowed crews to begin direct attack on the fire's edge. The evacuation order for Mayo was lifted on August 13.

Talbot Creek (MA-033)
Photo by Chris Boland



Takhini Bridge (XY-019)

Cause: Human-caused
Report date: July 8
Response zone: Full
Size: 1,546 hectares

On July 8 phonelines lit up with smoke reports in the Ibex Valley. The Takhini Bridge fire received a quick response from volunteer fire and wildland fire crews but grew quickly in dry conditions from one hectare at discovery to 100 hectares in 24 hours. The fire was highly visible and within one kilometre of homes, prompting a full response that included night operations, heavy equipment and an evacuation alert. For two weeks Yukon crews and an imported crew from Nova Scotia worked long days to box the fire in. An incident command post was set up at Hidden Valley Elementary School. The evacuation alert was lifted when the fire was declared held on July 18.



Takhini Bridge (XY-019)
Photo by Ted MacDonald

East McQuesten (MA-011)

Cause: Lightning
Report date: July 20
Response zone: Wilderness
Size: 13,688 hectares

The East McQuesten fire began in the wilderness zone north of Keno, but quickly grew to threaten the Victoria Gold Eagle Mine and nearby placer sites. The mine staff of approximately 300 people were evacuated on July 29. Critical staff remained behind to keep essential operations running while firefighters used hand ignition, built mechanical guard and coordinated aerial support to try and slow the spread of the fire towards the mine and access road. An incident management team took command of the fire on August 2. Dramatic fire behaviour that impacted the mine's only access road prompted a second evacuation on August 4. After two weeks of work and a downtrend in weather, the fire was declared held on August 12.

Eagle River (OC-007)

Cause: Lightning
Report date: July 26
Response zone: Wilderness
Size: 4,000 hectares

The Eagle Plains Lodge represents a critical stop on the Dempster Highway – it's the only accommodation between Dawson and Fort McPherson. In late July a lightning-caused fire three kilometres from the hotel grew quickly, impacting the highway and threatening the hotel on multiple flanks. Air tankers from Inuvik provided support, which bought time for an initial-attack crew to gear up a Highways and Public Works water tender. This equipment was used to soak the area east of the Dempster Highway, the hotel and outbuildings. Drip torches were then used to burn off vegetation east of the highway to create a fireguard. The hotel is now well protected from future wildfire.



Eagle River (OC-007)

Mt. Nolan (DA-009)

Cause: Lightning
Report date: July 23
Response zone: Wilderness
Size: 150 hectares

This fire started as a 27-hectare out-of-control fire located south of the Sixtymile River, west of Dawson. Air tankers were deployed but the fire escaped initial containment efforts. An evacuation alert was eventually issued for placer mines in the area, but the fire remained south of the Sixtymile River and didn't impact operations.

Mt. Nolan (DA-009)



Old Crow fires

Cause: Lightning
Report date: August 1
Response zone: Wilderness
Size: 5,000 hectares

Large wilderness fires are not unusual in the Old Crow region, but combined with heavy burning in the Northwest Territories, it was a remarkable summer for smoky conditions. The Vuntut Gwitchin First Nation declared an evacuation alert on August 3 due to health impacts from smoke. Around eight fires were in a 50-kilometre radius of Old Crow. A week later, due to low visibility and potential for fire spread due to a strong wind event, the community decided to implement a proactive evacuation order with the support of Wildland Fire. The community returned on August 17.

Old Crow fires (OC)



Fire season in review

By the numbers



Fires by zone

Fire Management Zones divide the Yukon into five areas that guide fire suppression decisions: critical, full, strategic, transitional and wilderness. Typically, the closer fires are to the critical zone, the higher priority for suppression. On the other hand, whenever possible fires in the wilderness zone are allowed to fulfill their natural role in the boreal forest.

Response zone	Area burned (hectares)*	% of total burned area
Critical	2.41	0
Full	9,923.4	4
Strategic	18,549.1	9
Transitional	9,760.1	4
Wilderness	185,631.3	83
Total	223,866.4	100



Fires by district and area

This year, a total of 207 fires burned in the Yukon's 10 fire districts. The total area burned was 223,866 hectares. Dawson had the most fires. The district with the most hectares burned was Mayo.

Region	District	# of fires	% of total burned area	Area burned (hectares)
Klondike	Dawson	62	9	20,152.4
	Old Crow	31	10	23,060.5
Kluane	Beaver Creek	2	4	0.1
	Haines Junction	1	0	0
Southern Lakes	Teslin	4	0	805
	Whitehorse	21	12	28,629.6
Northern Tutchone	Mayo	49	55	127,547.2
Tatchun	Carmacks	13	3	7,044.6
	Ross River	16	4	9,594.7
Tintina	Watson Lake	8	3	7,032.3
Yukon		207	100	223,866.4



Prescribed burns

Several prescribed burns took place this year across the Yukon. One took place in Watson Lake, while seven took place in Southern Lakes. In the Kluane region, four prescribed burns took place, including a partnership with Kluane First Nation to burn Duke Meadows (read more about this project on page 26).

By carefully planning and executing burns under controlled conditions we can restore natural balance and eliminate fuel build-ups. Sometimes, fire is good. It's a powerful tool we can use to protect our communities.



Scan the QR code to see timelapse footage of the prescribed burn in Duke Meadows.



A busy summer for lightning



2022-23 budget forecast

The final costs for the season are still being finalized, but this is about how much Wildland Fire Management has spent since April 1, 2023.

Prevention and mitigation: \$3,459,496

These are the costs associated with reducing community wildfire risk. Prevention and mitigation spending includes the FireSmart program, large-scale risk reduction projects like fuel breaks, and community wildfire protection plan work.

Preparedness: \$19,677,561

Day-to-day operational costs like employee salaries and air attack contracts are funded by this amount.

Direct fire costs: \$22,054,539

This is how much money Wildland Fire Management actually spent managing wildfires.

An update from Alberta

Kluane-based crew leader Frank Parent was sent out of territory twice this year as an agency representative (AREP). The role of the AREP is making sure imported resources integrate into the place where they're working, and that people are taken care of. In addition, they relay important information to the Yukon duty officer to keep Wildland Fire Management informed.

One such report by Parent from an Alberta fireline, on June 12, 2023, set a new standard for future AREPs:

I Walk the Line

That is the title of a song by country singer Johnny Cash. Today I walked the fire line. This is a common expression used by wildland firefighters. The line is between burnt and smouldering remains of a forest fire and the rest of the forest that has not burned, yet! This is where the wildland firefighters take their last stand against the forest fire.

I am walking the fire line of division golf on the Kimiwan fire complex about 30 km southeast of Peace River, Alberta. Twenty-one firefighters from the Yukon, half Yukon first nation's firefighters, and the rest Yukon Wildland Fire Management firefighters. They are working as a unit crew, holding the line, keeping the still smouldering fire from crossing over to the unburnt forest.

As I walk a section of line that is the responsibility of these Yukon firefighters, many different scenes come into view. There are people using a water hose, pumped from a nearby pond. Others are working with shovels and pulaskis on the still burning roots of trees. At times communication is heard from their FM radios. There is a breach in the line from wind driven fire brands that have crossed over the line. A flurry of activity entails as they stop the spread of the fire from crossing the line. All is well again, but the scene is repeated again and again.

The battle with nature continues for 12 hours each day, seven days a week, until after 14 days a mandatory rest is rewarded. Thus, as I walk the line, I am grateful for all the firefighters for their skill and effort in doing their best to contain what is becoming Canada's worst forest fire season ever.



Frank Parent, agency representative
for Yukon Wildland Fire Management. 🔥



A helicopter carries a bucket into the Alberta sky during sunset.

Photo by Phoenix Skalles

Exported firefighters receive a tailgate briefing in Alberta.

Photo by Derek Wolfe

Kris Johnson, left and Cal Read, right, show off gifted hoodies from their export assignment to Quebec.

Photo by Kris Johnson





Pembina Complex unit crew
with Cletus the Delta transporter.

Out of territory exports

While Yukon's fire season called for extra help from outside the territory in July and August, extensive early fire season activity across Canada meant that Yukoners were sent elsewhere to support wildfire responses in May and September.

Wildland Fire Management sent both wildfire crews and single resources to Alberta, Quebec, British Columbia and the Northwest Territories this summer. They were sent through the Canadian Inter-agency Forest Fire Centre Mutual Aid Resource Sharing agreement as well as the Northwest Compact. Notably, Wildland Fire Management was able to broker the deployment of Yukon First Nations Wildfire's unit crew to Alberta as part of these assignments.

These photos, taken on the ground during these mutual-aid trips, paint a picture of how out of territory deployments are important to the places where our staff lend a hand. However, they're also important chances to learn from other wildfire response teams so that we can provide the best possible response back home in the Yukon.



Louise Mongeon hard at work in Quebec this summer.

Photo by Louise Mongeon

BWR	5224	Rob Min
MPACH	561	Law Carls
NE2716	561	Chris Johnson
AOBD	US	Mike W
	US	Kevin Zou
	US	Bull W
EAHE	5756	Lauren B



Yukon firefighters assigned to Sturgeon Lake, Alberta celebrate a birthday in camp.

Photo by Linda Brandvold

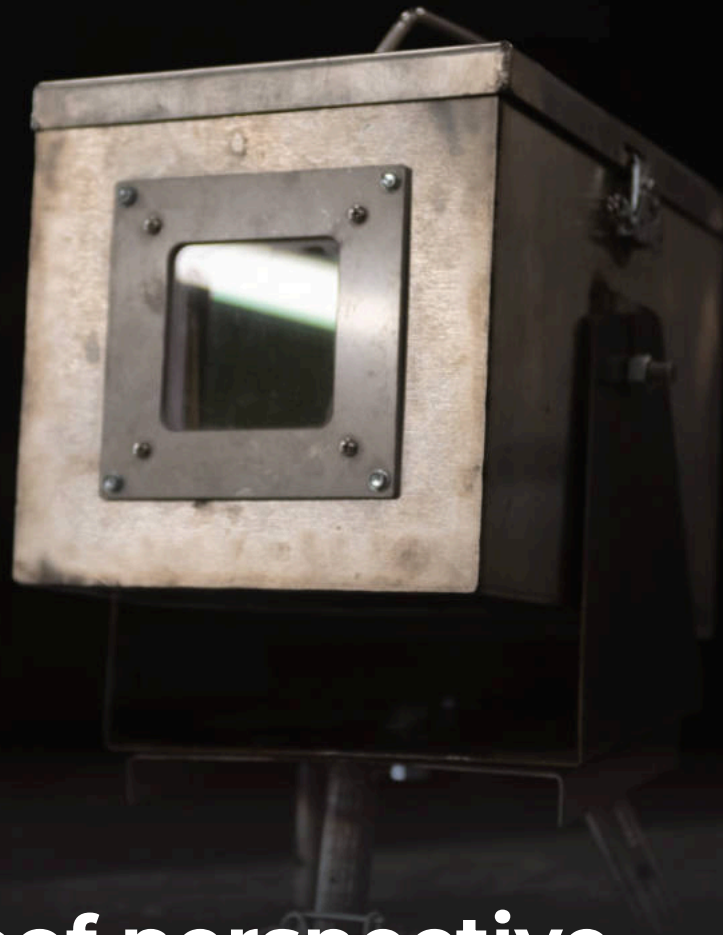
Alex Klubi loads a backpack after arriving at the Edmonton Airport for an export to the Pembina Complex near Edson, Alberta.

Photo by Chris Schwarz

Crews on EWF-039 near Edson, Alberta.

Photo by Mike Fancie





The fireproof perspective

Specialized cameras illuminate fuel research

Milan Lapres wanted the view from inside the fire.

In order to get it, he deployed fireproof camera boxes that look like they belong on a Mars rover. Inside, tiny cameras captured a view that would be too hot for a human photographer to handle.

“It’s essentially an insulated camera box that you can put directly inside the fire. From that you can get quite a bit of information that you couldn’t get from outside the fire, usually because it’s impeded by smoke or you can’t get too close because it’s so hot,” said Lapres.

“This gives you a much closer view of how things are burning.”

Made from insulated steel, the cameras and boxes were borrowed from FPInnovations, a not-for-profit research and development organization focused on Canadian forestry.

While the footage captured is a great tool to communicate with the public, the purpose of the experiment is to aid research on how different types of fuel burn.

The Canadian Fire Behaviour Prediction System outlines 16 different fuel types and the speed and intensity they burn at. Everything from leafy green trees, to conifers, to open grass is covered in the system. This helps predict fire behaviour – factors like the speed and intensity of a fire.

Mulched wood – the type of fuel being burned on the Mary Lake shaded fuel break – isn't a fuel type with predictive calculations. The closest we can use is the model for woody debris or "slash" and research has shown the model is not a great match for mulched fuel. Lapres wanted to get specific data for smaller processed wood.

The fuel break provided the perfect test site.

"The ultimate goal I'd say – we're very far away from now – would be to create a model for mulch fields and how they burn. Slash just isn't a very good proxy. The research is very time consuming but could inform future projects," said Lapres.

"Hypothetically, let's say that research shows small pieces have less intense fire behavior. We could do more passes with the mulcher and try to get the pieces to be a lot smaller," said Lapres.

To capture the data, Lapres sent up a grid plot before a burn. His test site was 18 metres by 18 metres of mulched woody debris. The plot was divided into 81 two metre quadrants, each of which was identified by spray paint and flagging.

The cameras – one in the sky on a drone and the others in three fireproof boxes – helped Lapres calculate how the chipped debris burned. Flame lengths, caught on camera and analyzed by a special software, allow measurements of burn intensity.

Drone footage allowed Lapres to measure how quickly the fire spread across the grid.

"Essentially, with the three ground cameras and the drone that was hovering above the grid the whole time, you can calculate the time the flame front passed through each of these flags," said Lapres.

"We're fortunate that we have access to some pretty unusual camera technology that can allow us to capture these visuals," said Lapres. "The in-fire cameras were a bit of an experiment, but they ended up working really well."

Lapres also had to keep track of variables like wind speed, fuel density, temperature, and fuel moisture.

In the future, a model calculated for chipped wood could help wildland fire better predict how chipped wood burns. This could help us answer questions such as "How long will it take to finish a prescribed burn?" or "How do we best minimize smoke impacts?"

It could also provide some information about how effective these treatments will be for reducing potential fire severity, which could have an impact on the treatment design. 🍷



Above

Lapres installs a camera at the site of a prescribed burn.

Opposite page

One of the fireproof cameras used to capture footage from inside the fire.

The pyro PhD

Yukon University researcher Jackie Semple faces the fire



Above
Jackie Semple acting in a planning role during the XY-019 response.

What kind of research do you do?

My initial project was focused on creating a risk modelling tool. My current research is expanding on that to look more in-depth at fire behaviour in the North and how modelling and decision support can be tailored to the unique challenges we face in the Yukon. I really want to work on something that will be useful for fire managers here in the Yukon, and that can be implemented to support operational decision-making.

What kind of work do you do at Yukon University?

I teach physics, math and astronomy at YukonU, and it's amazing to be able to share my passion for those subjects with my students! My background is in theoretical physics, which involved writing lots of code and running simulations of ultra-cold atomic systems. Essentially, the computer is my laboratory.

How did you get involved working at Wildland Fire Management?

A few years ago, I wanted to create a research project that I could involve my students in. I wanted to give them an opportunity to get some Yukon-related research experience in something relevant to the North. This led me to the world of wildland fire. I reached out to WFM and was put in touch with [Senior Emergency Response Officer] Kris Johnson. He is such a great champion for fire science as well as collaboration between operations and research. From that introduction, our risk modelling tool was born, and so was my new passion for fire science. I started my PhD studies in wildland fire, and then this summer I was given the opportunity to learn more about operations by working at WFM.



What was your role during the summer?

I was a Yukon Fire Centre officer, working in the duty room to support the Yukon Duty Officer. I was also tasked with continuing to work on other special projects, like Fire FROGs and FireCast. Once the season got busier, I was sent out to work on incident management teams for different fires around the Yukon, namely the Takhini Bridge fire (XY-019), the South McQuesten fire (MA-011) and the Talbot Creek fire (MA-033).

What was the most memorable experience from the summer?

The first thing that comes to mind is getting to experience my first ever helicopter ride.

But also very memorable was being at Victoria Gold the night that MA-011 blew up and witnessing the subsequent evacuation of the mine. I went from there to Mayo the next day to help in the regional fire centre. While I was there the town had to be evacuated. Those back-to-back evacuations and helping to manage those incidents were an experience I'll never forget.

How did it change how you see fire and fire response?

I'm now more aware of how chaotic things can get on an incident and how fast decisions need to be made. It was especially eye-opening to see the different ways that a small fire agency like WFM has adapted to function so well without a lot of the resources that larger agencies might have at their disposal. I think being small fosters creativity and opens the door for innovation, and it's really exciting to see.

Will it impact your research in the future?

Yes, this experience has already influenced my research and will continue to impact it in the future. I know that even if I develop a great tool or model or whatever, it might never get used if it isn't tailored to the unique needs of the agency. It really showed me the importance of collaborating with fire managers so that my research will be both meaningful and useful for operations. 🔥





Photo contest winner

Wildland Fire Management's monthly photo contest encourages submissions from crewmembers, crew leaders and fire staff during the fire season. This year's overall first prize went to Dawson crewmember Alex Klubi for his shot of a crew travelling through a forest painted bright red with retardant.

Submitting a photo in 2024? Send your best pictures during the season to YukonFireInfo@yukon.ca with the subject "Photo contest submission" and your name, position, description of photo and date it was taken. Winners will be entered to win monthly prizes and be credited in Fireline.

Runners-up



May
Lewis Cameron

Carl Gaumond poses with an epic triple melon on the fireline while on export near Edson, Alberta.



May
Darin Arthur

A Yukon firefighting crew walks the fire line on the Talbot Creek fire (MA-033) on Aug. 28.



June
Jakov Tokic

Wildland Fire and Whitehorse Fire Department personnel working an incident near Whitehorse Airport on June 16.



July
Brandon White

A crewmember gets a front-row seat to an NWT air-tanker run at the Eagle Plains Lodge on July 28.



Good fire Supporting traditional land use in Burwash Landing

Most prescribed burns don't start with a gamble – but it was the Kluane First Nation victory at the 2022 Yukon Handgames Championships that set into motion a plan to revitalize an important area north of Burwash Landing.

“The winning nation has the chance to host the next tournament,” explains Marissa Mills, a member of the Kluane Handgames Planning Committee. Part of the role of the committee was to prepare Duke Meadows, a traditional gathering spot that borders the Shar Ndü Chù or Duke River, for the tournament.

Duke Meadows, or Jèdàlß Tl'öw Kõy in Southern Tutchone (Spring Creek Meadow), has been an important place to people in the area for a very long time. Archaeologists have found evidence of ancient homes and communities there. For generations it's been an important gathering site and hunting spot for Kluane First Nation.

Over their lifetime, elders have seen the area change from vast open meadow to overgrown with yellowed grasses, scrubby willows and small spruce.

“It used to be like a flat meadow – people said you can see for a couple of kilometers down it. But now there's a lot of trees down there,” says Mills. “It was in January that that one of our one of our committee members had said, ‘Oh, we should do a burn down there.’”

Fire is one way that ecosystems in the Yukon, adapted to fire, can “reset.” When overgrown foliage is burned away, it creates new food sources for animals and releases nutrients back into the earth. It can also benefit humans by removing fire hazards and – in this case – welcoming visitors to a lush campsite for the tournament.



Opposite page

Kluane First Nation councillor Bertha Doris uses a drip torch to start the prescribed burn of Duke Meadows.

Above

Firefighters manage the prescribed burn.

Photos by Haley Ritchie



First Nations across Canada have a long relationship with fire, including targeted burning. Across cultures, including in the North, fire has been used for everything from warmth to ceremony, as well as stewarding animal and plant habitat and travel corridors. Each First Nation in the Yukon, including Kluane, hires their own three-person wildland crew managed by Wildland Fire Management.

“When I started talking to people about it in the community, their response was, ‘Oh, we’ve been wanting that for a long time,’” says Mills. “We all know somebody who’s involved in a wildland fire crew, and I think that’s part of the trust.”

The burn at Burwash Landing started on May 17 after months of careful planning. Kluane councillor Bertha Doris lit the very first strips of grass to help establish a burnt perimeter to contain the fire.

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Wind direction and speed are constantly monitored during a prescribed burn. After a perimeter is established, larger strips of land are lit so they burn into the blackened, completed area. Firefighters and a helicopter were on standby at Duke Meadows to wet down adjacent areas, control the burn and extinguish it when the task was done.

In a day the meadow was transformed from dry, yellow grass to rich black soil. As part of her responsibility in planning the head games, Mills waited nervously for the blackened earth to change again.



“I was getting worried,” she admits. “But then suddenly it just kept on popping up like more and more green grass and then fireweed as well.”

People came from across the Yukon in July to compete in the tournament. Many camped in Duke Meadows – although some visitors took home ashy feet after spending the whole weekend in the meadow.

“Everyone was very good about it,” explains Mills with a laugh. “I’m really glad that it happened because it was looking pretty yellow and dry down there. For it to green up for all our guests that were coming to Kluane, it was very much needed.”

Wildland Fire emergency response officer Doug Cote is hopeful that visitors to Duke Meadows noticed the difference good fire made to the area. His goal is that the government can

partner with more First Nations on prescribed burns in the future.

“This wouldn’t have happened without Kluane First Nation. They came to us and they trusted us with a very important piece of their territory to do this. That’s an honour,” he says.

Prescribed burns can help people of all ages better understand fire, feel more connected to wildfire solutions and are a powerful tool for protecting communities and cultural sites.

“These kinds of activities should happen more, and the more people in the community we can get involved – from young to old – the better.” 🍷

Above

A firefighter lays a burn line during the Duke Meadows prescribed burn.

Photo by Haley Ritchie



Burning questions about morel mushrooms by Ainslie Spence

Morchella esculenta, also known as the morel mushroom, is a boreal delicacy. But the Michelin-star-friendly fungus is commonly harvested in areas previously burned by wildfire. Why do they grow so well in these blackened and ashy areas? What exactly is a morel's relationship with fire?

This summer, I met with mycologist Sam Skinner to find answers. Skinner has a Master's of Science degree in mycology and leads "Mushroom Walk and Talks", a hands-on Yukon Wildlife Viewing workshop series that helps Yukoners and visitors learn more about Yukon fungi.

The mushrooms visible to us, like morels or puffballs, are only one small part of a much larger organism. Akin to apples and apple trees, mushrooms are the fleshy fruit of a larger underground fungus.

"For most of its life, the morel fungus will be in the soil, scavenging nutrients and having symbiotic relationships with trees," explains Skinner. "When it's triggered by something in the environment, it'll take some of its nutrients—its growth—and convert it upward into a mushroom."

Fire is apparently one of those triggers, but even for mushroom experts, the exact reason that morels appear in greater numbers after a wildfire is unclear.

"My hypothesis is that they spend decades living in the soil, producing and storing nutrients in growths called sclerotia. And then, when a fire comes, their nutrient sources cut off the trees, so the roots stop exchanging nutrients. There's a massive change in chemistry and the soil is changed. Stopping the flow of nutrients puts them in panic mode, and they convert all these sclerotia into fruiting bodies."

“For most of its life, the morel fungus will be in the soil, scavenging nutrients and having symbiotic relationships with trees.”

Other disturbances, like floods, can also promote this response. The purpose of these fruiting bodies is to spread spores – but unfortunately for the edible fungi, morels are also prized ingredients in kitchens around the world.

Wildfires can indicate a bumper crop, but even burn morels can't fruit if their underground mycelium are cooked to well-done. Skinner explains that morel mushrooms tend to grow in “happy medium” pockets of burn activity.

“Morels tend to be on the margins of fires,” said Skinner. “If it's a deep, hot burn, it just incinerates the soil and turns it to ash – all those sclerotia go up in smoke. It's more along the edges [of a fire] where you get some burning but not very deep. The roots have burned a little bit, but it hasn't totally incinerated the duff. So those sclerotia are still intact in the soil.”

At the end of each fire season, Wildland Fire Management publishes maps of wildfire perimeters larger than 100 hectares to GeoYukon, the government's mapping system of record. Morel pickers frequently refer to these maps to help them find fruiting morel patches triggered by wildfire disturbances.

In the Yukon, anyone can harvest morel mushrooms on vacant land for personal use without a permit. Commercial pickers require a permit.

Mushroom pickers should also be aware of “false morels”—genetic look-alikes that are toxic to humans.

After thanking Skinner for sharing some of his morel knowledge with me—and offering up a few of his favourite morel recipes—I was ready to seek out some morels for myself with another member of Wildland Fire's prevention and mitigation team.

The mid-June weather made for fine harvesting conditions. It had just rained, and the sun was blasting the soil with heat. We quickly located an area disturbed by fire the year before. Sure enough, we found several patches of morels around the edges of burnt ground litter and singed soil.

The morel patches varied in shapes and sizes. Some mushrooms were lighter shades of brown, while others were nearly as dark as the burnt debris. They smelled of earth. Incredibly delicate, they would crumble slightly when in contact with one another as they tumbled around in my bag.

Although many mysteries remain around these nutty little mushrooms, one thing was certain for me at the end of the day: without the fire, these morels would not have sprouted out of the earth to end up on my family's dinner plates. 🍄

Disclaimer: This article does not constitute mushroom identification or medical advice. Please consult expert advice when identifying and consuming foraged plants.

A morel mushroom.
Photo by Ainslie Spence





Firefighters on CBC

Wildland Fire talks exports on Yukon Morning

CBC's Robyn Burns interviewed two Yukon firefighters on Yukon Morning after their return from Alberta export. Here are some highlights from their conversation, edited for length.

ROBYN BURNS: Well, for much of the country, this has been a powerful and destructive fire season, and it's still early on. Lewis Cameron and Adam Gemmink are two of the 76 personnel that have been deployed outside of the territory. Lewis is based in Whitehorse, and Gemmink fights fire in Dawson City but is currently stationed in Carmacks, and they both join me on the line. Good morning.

LEWIS CAMERON: We went to Edson, Alberta. It was definitely an interesting deployment. I mean, nothing can ever prepare you for going outside of territory and you know, it's raining here, and you get off the plane down there and it's plus 30, and everyone's really just shaken by the wildfires and how close it is their town. So, yeah, it was just a blow to your confidence, just getting off the plane.

BURNS: What was running through your mind in seeing what you were seeing?

ADAM GEMMINK: I mean, you were definitely faced with the scale of the task, that you as a crew would be given these huge sections of fire and there's only so many of you to deal with at a time. And any time you would go through town, you would see how worried the people were. We would stop at a gas station to fill up our trucks before heading out to a fire, and you'd hear people asking whether the fires had gotten better, worried that it was getting closer to town, which it has now, actually.

CAMERON: I thought I was prepared for it, I had gone down to Kelowna two years ago in 2021, and I had a similar experience of just people being afraid. But I guess there's just no way you can really prepare for that stress. You just have to work through it and know that you're doing the best you can to help out the communities.

BURNS: And Lewis, what's the most noticeable difference between fighting fire in The Yukon versus what you just experienced in northern Alberta?

CAMERON: Well, the actual forest is a lot different. Fire behaves differently there because of it. Their trees are a lot bigger, which also means the hazards increase. We were working with danger trees out there that were massive. So, just having your eyes up the whole time was important. And we used a lot more heavy equipment. They just had so much more access to that. We were able to put in a lot more guard with heavy equipment, which made our jobs a lot easier.

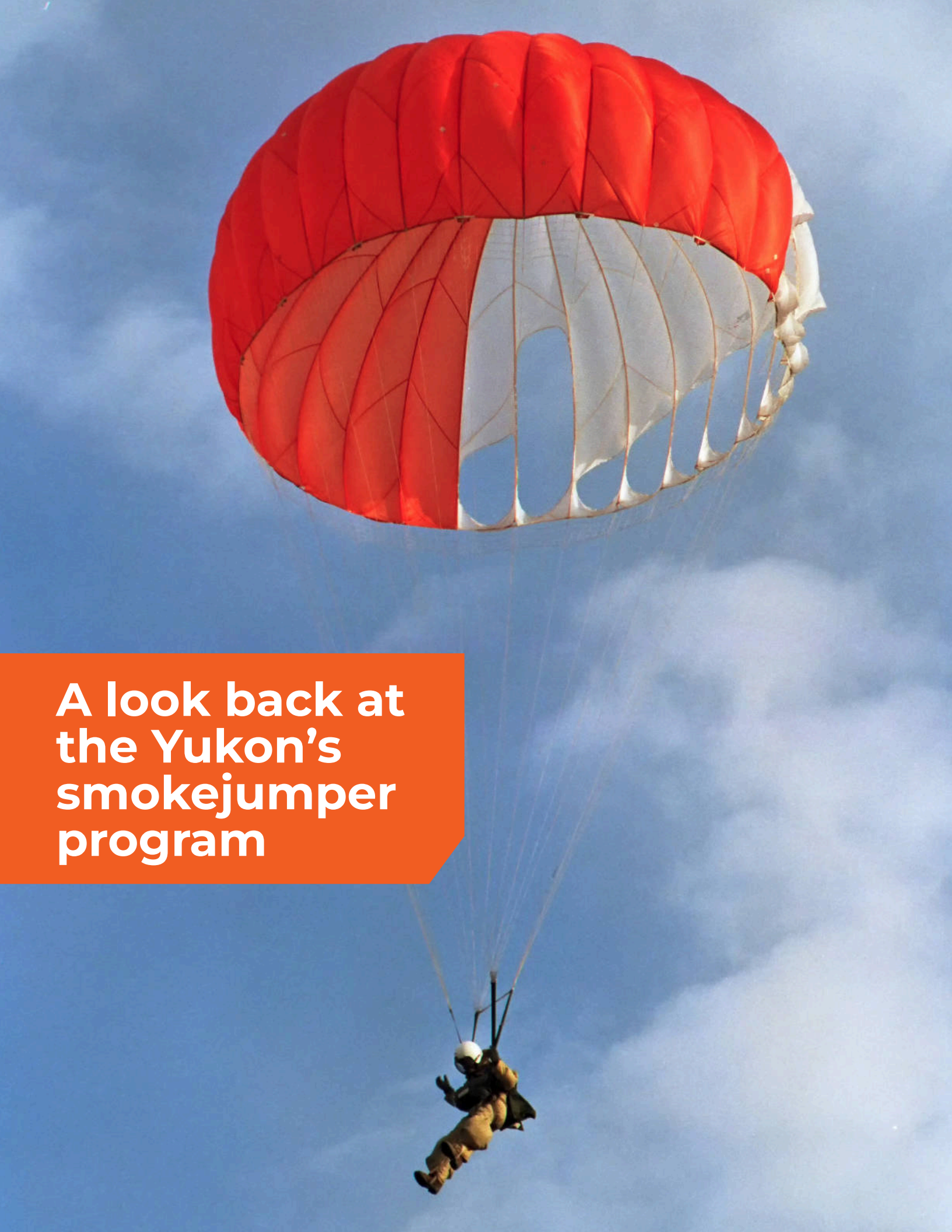
BURNS: Adam, for yourself, being fairly new to firefighting, how did this develop you as a firefighter?

GEMMINK: Well, it definitely gave me a lot more exposure to the larger fires. Up in, up here, we... I mean, we try to tackle our fires before they really become out of control, as the resources we have are relatively limited compared to almost every province in the country. And actually getting a chance to see how a larger fire is divided about is really interesting, and seeing how once these kinds of operations scale up, what they need to do to keep things organized. For myself, yeah, it was more fire experience, more than anything else, and getting a sense of how this job works at these scales and in different conditions.

BURNS: Lewis, just in terms of being a firefighter from a territory that isn't resourced as greatly as further south, what was it like to share and to come down and help them in their time of need, and be a part of a team? Of course, our fire season is not as bad as in the south, but what was it like to be able to lend a hand?

CAMERON: Well, it's the ultimate honour, right? That they trust our resource enough to request it, and be fully certified enough to go down and help. It makes you feel good, but you're only as good as the work you do at the end of the day, right? So, we got to go down, but it was just as important to actually do good work while we were there. 🧡



A photograph of a smokejumper in a red and white parachute against a blue sky with clouds. The parachute is large and billowing, with a red top half and a white bottom half. The jumper is visible at the bottom, wearing a white helmet and a dark jumpsuit. The sky is a clear blue with some light, wispy clouds.

**A look back at
the Yukon's
smokejumper
program**



It's hard to see how this is the easy part. As the engines' roar fades, the whooshing noise of candling spruce trees beckons the jumper downwards as he checks his canopy and visualizes his landing.

After that jump, the real work begins.

The Yukon's scrappy smokejumper program has a short history – it was only active from the 1984 until 1995 – but its roots run deep into the Canadian wildfire sector and both the Canadian and American militaries. As the program wound down in the Yukon, it served as an unlikely springboard for the British Columbia parattack program, the only one of its kind in Canada, which celebrated 25 years of operations with a reunion this fall.

Mike Marcuson is a former smokejumper who keeps a close relationship with Wildland Fire Management as a deputy fire marshal in the Fire Marshal's Office.

Marcuson remembers the versatility of smokejumpers for officers triaging remote wilderness fires. Since jumpships carried eight firefighters, you "could hit up to four different fires" with two-person crews and support them with air cargo dropped at locations chosen by the incident commander directly from the jumpship door.

In the early 1970s Marcuson's dad, Mike Marcuson Sr., played a leading role in expanding Canada's smokejumper program into the Northwest Territories through a company called International Fire Fighting Systems. When it

Former smokejumper Peter Laing in 1995.





closed, former employees formed Kusawa Contracting, the company who eventually won the federal tender to provide smokejumping services in the Yukon.

In 1993 Peter Laing was working at a parts shop on Vancouver Island and dreaming of spending more time outside. After a friend told him stories about smokejumping in the Yukon, he drove north on a whim. He made the cut after two weeks of rigorous training.

Laing eventually co-founded the BC smokejumping program and continues to work for the British Columbia Wildfire Service today. While Laing brought lessons from the Yukon back to BC, he also left a comprehensive photographic record of his time with the Yukon smokejumpers.

Laing said looking back, the expectations of smokejumpers

on the first day was “fairly hardcore.”

“A lot of times we wouldn’t even set up our tents; we would crash [and nap] to prioritize getting around the fire really, really quickly,” he said. “You could work the first 24 hours nonstop.”

This mobility served the aggressive initial-attack phase, where crews worked with what they had to secure a blackline as narrow as a foot wide to contain the fire.

“We used minimal water – whatever moisture was available – followed by someone to stir it,” said Laing.

He recalls that in some cases crews would expose permafrost-chilled mineral soil to dry-mop fires. If there were no water sources at all crews would establish a relay tank

that would be refilled by a helicopter and its bucket. Wasting water was an excellent way to lose your teammates’ trust.

Some of the technology has changed and been updated since 1995; a Buffalo Airways DC-3 contracted as a jumpship by Kusawa is believed to have been used in the Normandy invasion. However, the basic firefighting tools remain the same: hand tools, saws and pumps. And according to Laing, the principles of humility and professionalism remain as important today as they were then – no matter how you arrive at a fire.

“The jumping is just one way that we get to a fire. But you’re a firefighter first. Demonstrate excellence on the fireline – and afterwards be friendly and pleasant.” 🔥

Archive photos courtesy of Peter Laing



Faces of WFM

Out and about

1.

Andrew Pike shows a young recruit how to operate a hose following a prescribed burn in Takhini.



2.

Mayo firefighters Jenna Green and Darin Arthurs.



3.

Tomorrow's firefighters take a photo with a Wildland Fire Management engine following a prescribed burn in Takhini.





4. Whitehorse Delta (L-R): Soleil Stimson, Lewis Cameron and Hannah Deuling.

5. Whitehorse Bravo (L-R): Mac Prawdzik, Noah Wright and Jon Amos.

6. Mayo's Cate Taylor and firefighter Jeffrey Rideout.

7. Whitehorse Alpha (L-R): Andrew Pike, Jakov Tokic and Lara Herry-St. Onge.

Faces of WFM
The ones who came to help





Photos of various import crews providing assistance to the Yukon. WFM was grateful to receive help from Saskatchewan, Nova Scotia, Ontario and Newfoundland during a busy fire season.

Faces of WFM On the firelines

Whitehorse Hotel (L-R):
Joe Mewett, Zachary Nault
and Adam Robinson.

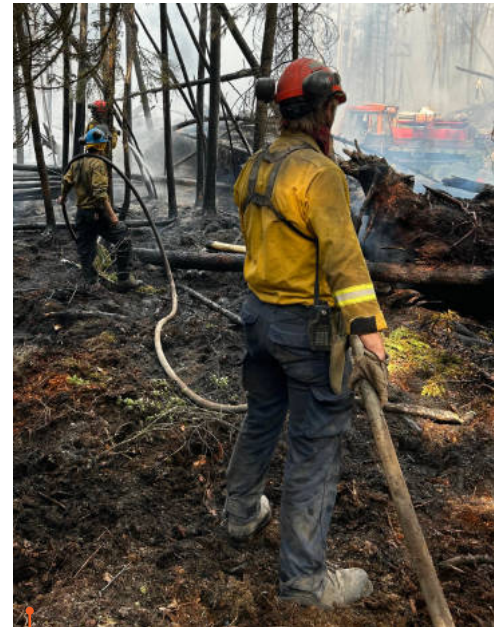


Talbot Creek fire (MA-033) Operations
Section Chief Guy Couture has his
hands full with radio and cellphone
communications.

Photo by Kris Johnson



Whitehorse firefighters Noah Wright,
Zachary Nault,
and Adam Robinson head out for a day on the fireline.



Crews wrangle hose while wetting
down hotspots in the forest.

Photo by Devyn Kassi

Little Salmon Carmacks crew walks a dusty road in Alberta near a wildfire operation.

Photo by Jesse Globensky



Whitehorse's XY Alpha crew.
Photo by Jakov Tokic



Prevention and mitigation staff Jennifer Sharp and Zoe Westerby working on the Takhini Bridge fire (XY-19).
Photo by Haley Ritchie

Mixmaster training in Whitehorse.
Photo by Marcel Michon



Walking the Talbot Creek fireline.
Photo by Darin Arthur



Berdoe crew (Joey Powell, Jesse Globensky and Parker Almond) poses on an excavator while on export in Alberta.
Photo by Joey Powell



A helicopter flies over the Takhini Bridge fire (XY-019).
Photo by Haley Ritchie



Heavy machinery digs up hot material on the fireline.
Photo by Eli Stevens



Lara Herry-Saint Onge uses a driptorch to eliminate ground fuels during a firefighting operation on XY-019.



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**Yukon**

