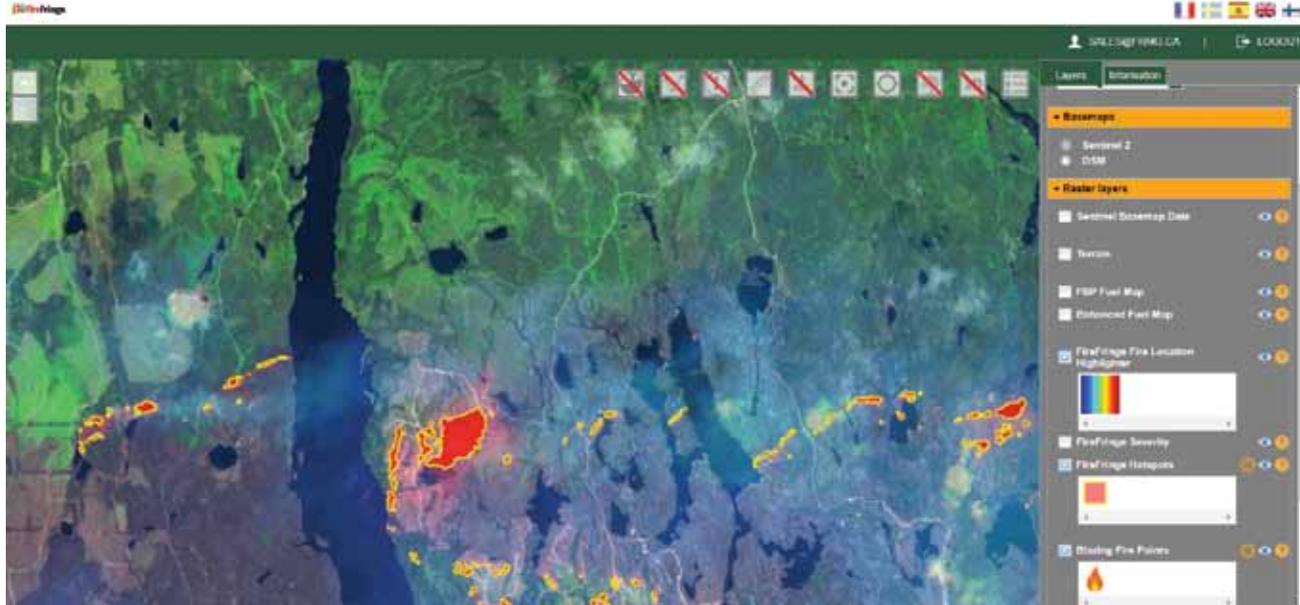


# How FireFringe™ came to be

BY STEVE PAWLETT

## NEW FIRE DETECTION SOFTWARE PROVIDES NEXT-LEVEL DETECTION INFORMATION



FireFringe's Fire Location Highlighter and FireFringe HotSpots Map layers show operators burning sections of Quebec's Saguenay-Lac-St-Jean region forest fire June 19th 2020.

New fire detection software provides next-level detection information

In 2018 two interesting events occurred that led to the development of FRMG's FireFringe™ fire detection software.

The first event was the occurrence of two forest fires in the Timiskaming and Abitibi River areas. "We provided our SkyForest™ satellite forest inventory data with some enhancements to help highlight fire risk," explains Phil Green, CEO of Forest Resource Management Group. "We then added fire detections we picked up

off other satellites. We put these enhancements on the SkyForest™ maps to show fire risk and where the latest fire detections were and show the risks based on the type of wood in the area."

FRMG provided the data to the mayors and reeves and other local town officials and the First Nations in the immediate area. "They found it very useful and we were updating it almost daily, particularly in Elk Lake because the fire was within 10 – 12 kms of the town," adds Green.

"During the Elk Lake fire, we saw the need to get the

current data into the hands of the public officials so they would be able to take whatever action was necessary," adds Green.

"The Reeve of Elk Lake saw our map and saw the fire had moved quite close to the town so he contacted the MNR fire fighting crew and they were not aware of the fire in that area so they hopped into a chopper and had a look and saw the fire there," continued Green. "We then started getting calls from the MNR and so we started providing them with the data for free in the interest of helping the fire fighting effort. In return, they provided some useful feedback and asked for additional data."

The second event was a trip to Helsinki with Export Canada and the Canadian Trade Commission and the National Research Council. "It was an international innovation conference and we were selected along with 10 other innovative forest technology companies. Born out of this meeting was a collaboration agreement with two Finnish companies to develop what is now called FireFringe," explains Green. "We are now working with Finnish companies Arbonaut and Terramonitor to develop this application. We have assembled people on our team here including a scientist from NASA, coders, GIS people and foresters."

### Free App

There are two elements to the fire detecting program. There is a mobile app called FireFringe™ that is free to download and available on all phones. It shows hotspots around the globe updated twice a day.

"We then developed the web FireFringe™ platform. It gives you a host of information including the FBP (Forest Fire Behaviour Prediction) and fire perimeter (hence the name Fire Fringe).

"With the SkyForest™ technology we now produce an enhanced version of the FBP map at 10m pixels right across Canada on the FireFringe™ platform. We can tell you the fuel type in every hundred square metres of Canada, coast to coast. This is useful data to identify where a fire is going to go and at what rate its going to burn," explains Green.

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The FireFringe™ platform provides the latest Sentinel-2 satellite images. “These could be as recent as yesterday or five days ago depending on cloud cover, but we are providing the most recent image available. This is very useful for firefighting because you want to know if there is a road in the area, or if any logging or any reforestation has occurred in the area, etc. Those satellite images are acquired and incorporated into our platform and are available for the users of the platform,” adds Green.

FireFringe™ produces a terrain map as well, with elevation, slope and moisture right across the country.

“You need to know the terrain to determine access and predict how quickly it’s going to spread. We use satellites as they pass overhead, we download the data and map the actual fire.

“Once we detect a fire, we start zeroing in with higher resolution satellites and we start mapping individual peculiarities of the each fire and produce a 10m X 10m grid system so you can see the hotspots and the burn area of individual forest fires across the country. This data provides a good sense of where the fire is and where it is going,” adds Green. We also provide fire location data for the mobile app as well it’s just a little less precise—within a few hundred metres.

This platform is freely available to the Ontario government this year as part of FRMG’s COVID-19 effort. RMG is also making it freely available for fire fighting agencies through the month of June across the rest of the country.

“The MNR has expressed interest and are now looking into how it fits in with their workflow. This is a two-year project that is funded by FRMG and the National Research Council. We were in Helisinki in the Spring of 2018 and then we started the research development about a year ago. We wanted to put something in front of the fire fighters this summer so we could get their feedback and from that decide what improvements we need before the main project development is complete,” said Green. “When you are fire fighting the job is to protect life and infrastructure and timber values and so on so it is quite helpful to have the most recent satellite images.”

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BC had planned on planting the highest number of trees ever this year. In other provinces, for example, Alberta, tree planting often starts around May 10th or May 18th, depending on the geography, so Alberta was not delayed.

“In BC, the Minister said planting couldn’t start until May 4th but, a lot of the contracts couldn’t start until around the tenth of the month because when the pandemic hit, contractors immediately went into a negotiating phase with government and clients. There was a lot of work to be done from mid-March until very late in April, where we were negotiating with the government. Once negotiations concluded, the tree planting contractors began negotiating with their clients. This took some time as well,” adds Tetro.

Tree planting is a very complicated operation. “We have people that we have to move across the country, and we had to have them quarantine, and we didn’t know if they would be allowed to cross provincial borders within Canada. We did have some people turned around and not allowed to travel. You can’t just make a decision and begin tree planting the next day. It takes a great deal of

time to get organized with the necessary protocols in place,” explains Tetro.

“Even though there was an agreement with the government, it was with our clients. So that made it even more unclear for tree planting contractors, and we had to negotiate with our clients. This took some time to sort through. Some contractors started up without a formal agreement in place, and others waited. It was basically down to the wire with everyone in BC starting late,” explains Tetro. “In BC, the spring trees are supposed to be done by June 20th, but those trees in most places are going to be late. Then it will be up to the licensees to decide if they want to keep planting them and risk mortality, or not plant them and know there will be mortality. What you don’t plant won’t grow.”

“For the most part, we came to agreements, but we hope tree planting contractors remain whole after this. It’s tough because our clients are going through a difficult phase right now too, and with the whole economy turning south, it makes it a challenge for everyone, and we recognize our clients are in a very challenging position right now as well,” adds Tetro.

Tetro said it was great to see tree planting contractors working together, sharing information on safety.

“In Ontario, the licensees worked as a group to lobby the government, and in BC, it was led by the Western Forest Contractors Association (WFCA). The WFCA gathered together all the contractors and also worked with licensees wherever possible. Licensees were invited to work with us on this or were provided information that the WFCA put together.”

Most of the public health order was made up of the recommendations put together by the WFCA, and this was shared across the country.

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skilled individuals who come back every year. They start the season lifting trees, getting them bagged and packaged, ready to go out to the planting partners. Then they shift to the seeding and tending.”

“When it appeared that the skilled workers might not arrive for the lifting and seeding, we offered to deploy Forests Ontario’s staff to help; many other planting partners did the same. In the end, they ended up hiring local students to do the seedling lifting. The productivity was pretty good, but not as it would have been had the highly experienced folks been on site. All the same, they worked very hard to get the job done. The nurseries prioritized to ensure they fulfilled the partners’ planting orders. It was an impressive effort under new and unusual circumstances,” says Keen.

Last spring, the 50 MTP faced a different set of challenges. The program had its funding cut by the Government of Ontario, and its future was uncertain. In June 2019, the former Minister of Environment and Climate Change, Catherine McKenna, announced Federal funding to save the 50 MTP. The Government of Canada committed up to \$15 million over four years, with additional funding from corporate sponsors and donors. Program support is now overseen by the Minister of Natural Resources, Seamus O’Regan.

“Thanks to support from Minister O’Regan’s department and others, we’re preparing for a robust 2021 planting season – hopefully without COVID-19,” adds Keen.

“The work of Canada’s forest sector to address the challenges caused by COVID-19 is an example of innovation and teamwork. With hard work, cooperation,

commitment, and trademark Canadian ingenuity, a successful tree planting season was completed,” said Minister O’Regan.

“Being able to plant this year was important; it would have taken several years to make up for any planting shortfalls. We are very pleased with the results, given the challenges we faced,” explains Keen.

Distinct from the 50 MTP planting, the forestry industry in Ontario plants 60 to 80 million trees per year on Crown land, a legal requirement for harvesting these public lands. In contrast, Forests Ontario is focused on creating new forests, primarily on private land.

“When we talk about the Prime Minister’s 2 Billion tree promise, that is about establishing new forests all across Canada,” notes Keen. “Planting 2 Billion trees over the next 10 years is going to be a huge task. We have made-in-Canada expertise and, with predictable long-term funding to support the orderly roll-out of the program, it can be done.”

To date, Forests Ontario has facilitated the planting of more than 30 million trees through the 50 MTP, which equates to approximately 17,000 hectares of forest. It is the leading non-profit organization for the delivery of high-quality, large-scale tree planting in Ontario.



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