



## FireSmart BC 2023 Research Wildfire in the WUI

March 1, 2023



- BC FireSmart Committee & strategic plan
- Standing Committee on Research
- Current and future research projects
- WUI Research

#### **BC FireSmart Committee**





British Columbia

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First Nations' Emergency Services Society of British Columbia

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Ministry of Emergency Management and Climate Readiness (EMCR)





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British Columbia Office of the Fire Commissioner



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- Started in 2017
- 12 provincial and federal agencies
- Completed strategic plan in 2021

#### **OUR VISION**

A wildfire resilient province, where everyone works, plays and lives FireSmart

#### OUR MISSION

Build wildfire resiliency and reduce the negative impacts of fire for everyone in the province through FireSmart.

#### **OUR STRATEGIC GOAL**

Everyone in the province is aware of FireSmart, understands their role, accepts responsibility and takes action to increase wildfire resiliency.

## **BC FireSmart Committee strategic plan**



## **Our Strategic Themes**



## **EVIDENCE**

Integrate research and information management to support evidence-based decision making.



## **EDUCATION**

Targeted education, training and communication that empowers and mobilizes.



## **STRUCTURE**

Build an aligned, sustainable and inclusive organizational structure.



## **ACCESS**

Recognize unique needs and capacities to facilitate equitable access and outcomes.



## **COLLABORATION**

Collaborate with partners to build capacity, trust, and public confidence.



## **ENGAGEMENT**

Engage with all levels of Indigenous and non-Indigenous governments to support and implement policy, planning and funding.

## **Standing Committee on Research**













Ministry of Forests

The Standing Committee of Research under the BC FireSmart Committee is tasked with providing guidance on how best to support the furthering of wildfire resiliency in BC, establishing a method for research project coordination across the province, nationally and internationally as well as with aligning research priorities with those of FireSmart Canada as well as national agencies like Canada Wildfire, CIFFC and Natural Resources Canada.

## **Quick-Deploy FireSmart Data Collection Project**





#### **Background**

- FireSmart BC and BC Wildfire Service (BCWS) have determined that data, collected before, during, and after a wildfire impacts a community could be used to identify the effectiveness of fuel treatments and structural vulnerabilities.
- Framework developed to support researchers in gathering empirical data during WUI events.

#### **Objective**

 The objective is to safely, effectively, and efficiently gather data to further the understanding of the efficacy of FireSmart treatments and the exposure of structures during WUI events by collecting data:

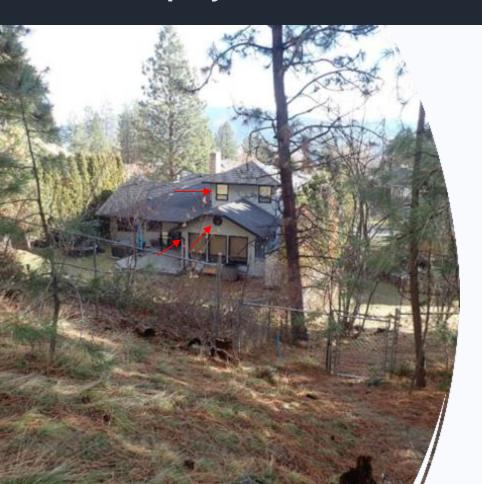
#### Goal

 To improve public uptake of the FireSmart principles via education



## Quick-deploy FireSmart data collection





#### **Framework Development**

- collection methods
- logistics
- collection, storage, and eventual analysis of the data

#### **Skill-sets and Equipment**

- FPI has 6 researchers with a broad range of skills.
- Full complement of research gear.





## **2021 Fire Season Update**



- Over 40 days (July 3 to Aug 13) we were dispatch to 6 incidents. These included:
  - Larger complex incidents and smaller incidents (with minimal resources)
  - 6 researchers dispatched as teams of 2



## **2021 Deployments**

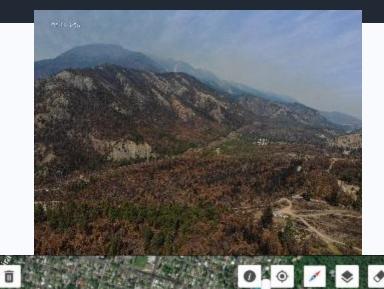


Fire name	Sparks Lake #1	Sparks Lake #2	Whitecroft	Tremont Creek	Octopus Complex	White Rock Lake
Fire number	K21001	K21001	K21644	K21849	K51800	K61884
Date of deployment	July 3–4, 2021	July 5 –8, 2021	July 13 –14, 2021	July 15 –16, 2021	July 22 –23, 2021	August 11 –13, 2021
Situation at deployment	Fire threatening many structures over large area	Fire threatening many structures over large area	Fire moving down valley and slope toward community	Unprotected acreages above Ashcroft	Threatened structures, structures lost, heavy equipment mobilized	
FPInnovations response	2-person, response next day	6-person, response same day	2-person, response same day	2-person, response same day	3-person, response next day	2-person, response same day
Execution (what was done)	Cameras, house assessment	Sebastin Lake: 8 structures assessed, and cameras set up	Cameras, house assessment	Cameras, house assessment	Cameras, house assessment	No cameras, but house assessment
Camera numbers	6	10	4	4	6	None
Type of footage collected	360°, in-fire	360°, in-fire	360°, in-fire	360°, in-fire	360°, in-fire	None
Number of structures	One with multiple outbuildings	8 cabins/ outbuildings	1 with multiple outbuildings	1 with multiple outbuildings	3 structures	None
Status of structures	Threatened by fire, sprinkler protection in progress	Potentially threatened	Threatened by fire, sprinkler protection in progress	Threatened by fire, sprinkler protection in progress	Threatened by wildfire, no protection	No candidate
Relative threat	Good chance	Moderate	Good chance	Good chance	Good chance	No candidate
Photos of	SFTP <sup>a</sup> , all photos available	SFTP, all photos available	SFTP, all photos available	SFTP, all photos available	SFTP, all photos available	SFTP, all photos available
vulnerability	for access	for access	for access	for access	for access	for access
Time to deploy equipment	1.5 hours	1.5 hours	0.5 hours	0.5 hours	0.5 hours	None
Results – after setup	Suppression efforts, no fire growth	Fire did not approach	Low fire behaviour, road, suppression efforts prevented any damage	Suppression efforts prevented any structure damage	Fire petered out adjacent to structures	None
Data management	Hard drive backup	Hard drive backup	Hard drive backup	Hard drive backup	Hard drive backup	Hard drive backup
Location of structures	Google maps pin	Google maps pin	Google maps pin	Google maps pin	Google maps pin	None



## **Project Updates**





#### RPAS (Drones)

- RPAS due to Federal regulations we were unable to use drones in fire restricted areas in 2021.
- Gained National Certification allowing us to fly in Fire Restricted Airspace.
- This will increase data collection in both quantity and the speed at which it can be collected.



## **Changes for 2022**



#### **Automatic Dispatch**

- Over-winter discussions with FireSmart BC, BCWS, and SPS personnel led to a change in how the research team is dispatched.
- New process for FireSmart research team dispatch
  - Incident Commander (IC) calls the Provincial Wildfire Coordination Centre (PWCC) and requests structural protection.
  - PWCC relays request to Structural Protection Coordination Officer and FireSmart Research Liaison.
  - FireSmart Research Liaison dispatches and provides research team with information support.



## **Project Updates**



#### **BCWS and SPS Liaisons**

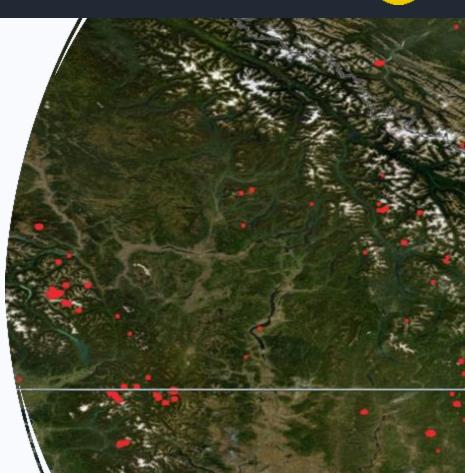
- The research group acted with and without liaisons positions last summer.
- On large complex fires (Sparks Lake) our liaisons were beneficial in navigating the ICS and the sectors we were working in.
- On smaller fires or little resources areas of large fires we acted without a designated liaison.
- 2022 we had a dedicated FireSmart Research Liaison who provided us with information support.



## Fire Season 2022

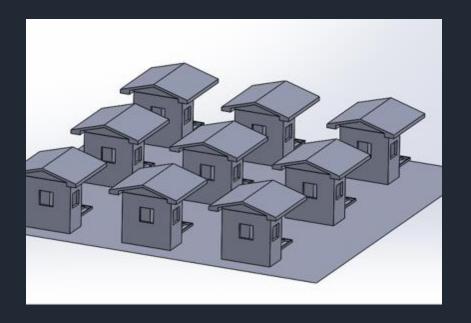


A similar number of overall fire starts as in 2021, but fires were smaller and not as close to communities. Overall, we still had 2 deployments and 4 equipment installations.





Other
FireSmart
Research
Initiatives



#### **Research Initiatives**





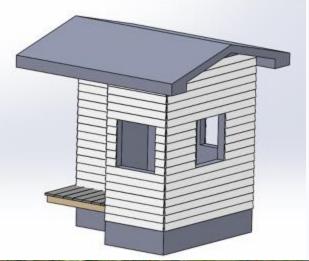
#### **Basic post-fire structure assessments**

- Researchers are not trained for 'post-fire assessments' in structural fuels.
- Basic training with a Fire Investigator will assist in collecting basic information to be able to piece together how structures ignite and then fire spreads
- One researcher Level 1 training completed at this time.



#### **Research Initiatives**







#### Structure Ignition Research

- Two plots in NWT where structure ignitions will be researched.
- One plot will have 9 'scaled down' structures of common materials and design. Will be subjected to heavy ember storm.
- Second plot will have two FireSmart structures (one with sprinklers) and one non-FireSmart structure within the forest.



#### **Research Initiatives**



### Wildfire Ember Simulator (WES)

- We are in the process of creating a one of a kind Wildfire Ember Simulator with the University of Victoria.
- WES is a portable machine that will launch "embers" on to real life structures as an educational tool.





# **FP**Innovations

GET IN TOUCH

**Greg Baxter** Greg.baxter@fpinnovations.ca 780-877-1793









Kelsey Winter Research@FireSmartBC.ca 2508967484

Helena Marken Research @FireSmartBC.ca 250-255-4848

## **Current and future research projects**



- Wildfire Ember Simulator
- Post-fire examination framework
- Ignition Assessment System
- Northwest Territories ignition project
- Public perception surveys
- University program
- Wildland-urban interface research



