Network fuels burning desire to understand wildfire

July 15 2020, by Debora Van Brenk

Western is one of five nodes in the Wildland Fire Research Network, a joint effort between the federal government and the Natural Sciences and Engineering Research Council of Canada (NSERC) to help understand and predict wildfire risk. Credit: University of Western Ontario

Each year since 1990, about 2.4 million hectares of Canadian trees fall

to wildfires, more than double the annual area that caught fire 50 years ago.

Even though fire management practices have improved, they've been no match for a pattern of warmer temperatures, drier forest conditions and more urban encroachment—all of which have meant more numerous, more intense and more complicated wildfires.

Now, the Government of Canada has launched a $5-million investment in a Wildland Fire Research Network, in collaboration with the Natural Sciences and Engineering Research Council of Canada (NSERC), to help understand and predict wildfire risk.

With Western as one of six nodes in the network, Science Dean Matt Davison and Statistics and Actuarial Sciences professor Douglas Woolford will lead the research.

The national network will help develop 68 graduate and postgraduate fire professionals to examine the danger and reduce the risks and losses from wildfires.

"A great part of being a network is that we're not working in isolation. With other research nodes at the University of British Columbia, University of Alberta, University of Lethbridge, McMaster University and University of Toronto, a single postdoctoral researcher may be co-supervised by researchers at several institutions," Woolford said.

The network connects researchers from the fields of biology, physical and social sciences, economics, and engineering with governments, research institutions, and funding agencies across the country. They will work closely with the Canadian Partnership for Wildland Fire Science, based at the University of Alberta.

The network was born from the 2018 [Blueprint for Wildland Fire Science in Canada](#), which recommended expanded research and federal investment in wildland fire science. That report followed the massive 2016 Alberta fire that forced the evacuation of Fort McMurray and caused an estimated $9.9 million in losses. But it was just one of 8,000 wildfires that takes place in Canada each year.

Woolford's specialty is environmetrics, a data-driven approach to modelling and predicting fire occurrence; understanding how vulnerable an area is; and forecasting a fire's potential impact on people, places and things.

The network is also figuring out best tools to mitigate risk in specific circumstances, including logging and replanting practices, and how best to protect people and property when homes abut forests.

During the early days of COVID-19, for example, backyard fire and campfire bans were in effect across Canada in recognition that the pandemic may limit firefighting response.

"Fire has a lot of moving parts, and wildfire science is inherently interdisciplinary," Woolford said. "We're not looking at the science in isolation; we're looking at the science with an end to improving fire management. It's a combination of basic and applied science."

One concern identified in the Blueprint is that the research needs are evolving and growing at the same time as many fire scientists are aging and retiring.

"The real focus of this training is to try to increase Canadian research capacity," Woolford said. "(We are) training the next generation of [fire](#) science researchers."

The intent is also to share information across international lines, he said, noting that fires happen on every continent except Antarctica.

Provided by University of Western Ontario