

# Project Plan

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FPInnovations  
Wildfire Operations Research  
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## Fire Behaviour in Mulched Fuel Beds along Linear Corridors

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### Introduction

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Mulching is often used as fuel treatment along linear corridors such as hydro line rights of way in forested areas to reduce the potential of line contact with vegetation and convert the fuel loading under the hydro lines and structures to a less flammable state.

Research and documentation of fire behaviour in mulched fuel beds along linear corridors is limited. Even though there is general acceptance that mulching is an effective fuel treatment for reducing fire intensity, questions remain regarding the conditions under which mulched fuel beds will act as a fuel break or serve as a wick for sustained fire spread.

This project will study how mulched fuel beds in linear corridors respond to point source ignition (simulating ember transfer) or line ignition (simulating an approaching fire front). Experimental burns will be conducted under varying weather and fuel moisture conditions.

### Methods

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Mulched fuel environments have unique characteristics such as fuel bed depth, age of mulch, fuel particle size and shape, slope and aspect, and exposure to solar radiation. The first phase of this project will be to characterize mulched fuel beds in linear corridors and document the characteristics of the original fuel stand. A goal of an associated research project is to establish a relationship between fuel bed depth and host forest stand characteristics such as species and stand density.

A mulched fuel grid and several mulched lines have been prepared at the Canadian Boreal Community FireSmart (CBCFS) experimental burn site near Fort Providence, NWT (see project notes for Winter Mulching Operations – [Fort Providence](#)). Burn plots will be established in the mulched lines and experimental burns will be conducted to document fire behaviour resulting from point ignition and line ignition through a progression of drying days and changing fuel moisture content.

Opportunities for experimental burns in mulched fuel beds exist at Horse Creek research site (Woodlands Area, Alberta). Mulching operations will be conducted in June 2012 and create opportunity to study fire behaviour in fresh mulch and establish mulched fuel plots which can be used in subsequent years to study fire behaviour in aged mulch.

The Horse Creek research site provides opportunities to establish larger burn plots and collect fire behaviour data in sustained burning conditions. With the anticipated extended research timeframe at Horse Creek, long term studies can be designed to study fire behaviour in replicated mulched fuel beds of varying depth under different weather and fuel moisture conditions.

## Safety

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Tailgate safety briefings will include fireline safety (LACES). Fire crews will be on site with firefighting equipment to prevent spread of fire beyond pre-determined boundaries. First aiders and first aid equipment will be available on site. Emergency procedures and contact numbers will be communicated and posted on site. A satellite phone will be on site if cell phone coverage is not available. All personnel will use required PPE.

While travelling to these sites, personnel will use HomeSafe check-in procedures.

## Timeline

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Fuel bed characterization along linear corridors will be conducted in early May.

Experimental burns at the Canadian Boreal Community FireSmart (CBCFS) experimental burn site are planned for the last week of June 2012.

Studies and experimental burns at Horse Creek will be ongoing through the summer of 2012.

## Deliverables

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Completion of these field operations will be documented in a project report to be published in September 2012.

## Participating Members/Collaborators

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BC Hydro

Northwest Territories Environment and Natural Resources

Alberta Sustainable Resource Development

University of Toronto

University of Alberta

## References

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Winter Mulching Operations – Fort Providence, NWT. 2011 FPInnovations Project Note March 2011. <http://wildfire.fpinnovations.ca/3/WinterMulchingOperationsNWT2011.pdf>