

PROJECT PLAN

November 2017

Black Spruce Fuel Amendment

Steven Hvenegaard

BACKGROUND

Alberta Agriculture and Forestry (AAF) has explored this fuel amendment technique in a montane fuel environment. This fuel amendment technique was applied in a mature lodgepole pine forest stand and burned under moderate fire hazard conditions. The amendment technique involved using a feller buncher to create parallel machine trails and placing the residue of stems and branches from the trail under the adjacent canopy. This fuel amendment process resulted in a blended fuel environment made up of the mature lodgepole pine overstory and a surface fuel layer amended with fine and medium sized fuels from the cut stems. During the prescribed fire, the amended surface fuel layer generated fire intensity sufficient to scorch aerial fuels and cause mortality in overstory stems.

ISSUE

Large expanses of black spruce fuels in Alberta and other parts of Canada pose a major wildfire threat to communities and other values at risk. Fuel treatment is expensive and fuels managers would like to explore opportunities to mitigate the risk of wildfire through innovations in fuels engineering and prescribed fire.

High density black spruce forest stands are not suitable for using harvesting equipment so the use of alternative machinery such as dozers is being considered as a means to create a fuel amendment.

OBJECTIVE

Dozers will be used to shearblade strips of fuel and push the cut stems into windrows against the standing stems. Prescribed fire under moderate fire hazard conditions will be applied in the windrowed fuels.

We will monitor the fuel amendment process to evaluate productivity and effectiveness of the operation. We will document fire behaviour and resulting needle scorch and stand mortality.

The results from preliminary trials will be analyzed and the prescription for further studies can be modified to adjust the fire intensity generated by the amendment strips.

METHODS

Burn Unit 3 at the Pelican Mountain FireSmart research area has been dedicated to fuel amendment studies. In the winter of 2017/18, we will create a fuel amended treatment and burn this site in the fall of 2018 under moderate fire hazard conditions.

The results of this prescribed will be evaluated and necessary adjustments to the fuel amendment prescription will be applied in fuel amendment treatments to be conducted in the winter of 2018/19. These treated areas will be burned in the fall 2019.

DELIVERABLES

Project updates and a technical report will be posted to the FPInnovations Wildfire Operations Research Group website.

COLLABORATING AGENCIES

Alberta Agriculture and Forestry has designed and constructed the Pelican Mountain FireSmart Research area. An Expression of Interest and Detailed Project Plan have been submitted by AAF to the Wildfire Management Science and Technology group.