PROJECT PROPOSAL
March 2014

Productivity of equipment used in fuel treatment operations

BACKGROUND

During the National Forest Fuels Management Workshop held in January 2014, agency participants revealed that they struggle to reliably estimate the cost of forest fuel treatments, and that contractors and operators struggle to determine reasonable bids. Forest fuel treatments in Canada are applied across a diverse landscape within various forest types. Operations typically involve several different types of treatments and types of equipment, and tend to be small-scale, variable, and infrequent. Given the many variables encountered in conducting forest fuel treatments, it is difficult for wildfire managers and operators to compare production rates and anticipate associated costs.

FPInnovations' Forest Operations Research division has led decades of productivity assessments for the forest industry. As a result, parties on both sides of a contract have a good understanding of how much a project should reasonably cost, and what a reasonable profit should be. At the National Forest Fuels Management Workshop, Mark Ryans, an FPInnovations Research Manager, walked through the basics of an equipment productivity assessment. Agency participants at the workshop felt strongly that some of the expertise gained from productivity assessments in the forestry industry can be applied to forest fuel treatment operations.

To see whether the methods used in forestry operations were applicable to fuel treatment operations, we collected some productivity data on mulchers that had begun fuel treatment work near Slave Lake, Alberta in January and February 2014 The fieldwork went well, and we are now analyzing the data. We seek support from you, our advisory members, to continue working with agencies to conduct productivity assessments when the opportunities exist.

ISSUE

In order to budget for forest fuel treatments and optimize returns, wildfire management agencies first need to know the productivity rates of the equipment they use to construct forest fuel treatments.

OBJECTIVE

Measure the productivity of machines while they are engaged in fuel treatment work.

METHODS

Researchers will work with agencies to identify upcoming fuel treatment projects that would provide suitable data collection opportunities.

Each project site will be classified according to forest stand type. When a project site includes several forest stand types, it will be divided into blocks according to stand type. Where possible, multiple treatment types will be incorporated, and replications will be conducted.

Using the fuel sampling protocols established by the Alberta Wildland Fuel Inventory Program, researchers will collect data on the pre- and post-treatment stand conditions (stand density, basal area, etc.) and will calculate the total biomass processed.

Researchers will equip each machine with a MulitDAT, an electronic datalogger developed by FPInnovations Forest Operations Research Division specifically for off-road equipment. The unit—used extensively in forestry operations—will record productive machine time and the GPS track of its movements. Researchers will also capture operations on video.

DELIVERABLES

We will prepare a case study for each piece of equipment studied.

BUDGET

TBD