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## ***Interactive comment on* “Overview of a prescribed burning experiment within a boreal forest in Finland” by A. Virkkula et al.**

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### GENERAL COMMENTS

I share many of the same concerns as Anonymous Referee 2 regarding this article (e.g. suggestion to compare the present results with previous studies such as FIRESCAN Team, 1994; Cofer et al. , 1998). On the other hand, I am also in partial disagreement with some of the comments made by Anonymous Referee2. For example, while the experiment does not involve “natural forest fires” it would simulate to some extent a fire burning through a forested area containing clear-cut blocks of logging slash. However, in this case the ignition pattern used was not indicative of a wildfire moving through a forest area (see Walker and Stocks, 1972). In fact, the ignition pattern utilized coupled

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with the light winds encourage a vertical smoke plume as opposed to inclined one. I have two major concerns about the article in its present form. The first is that it tends to come off as poorly written no doubt due to the fact that all but one of the 33 co-authors has English as his/her first language. Secondly, the article does not provide a good description of the physical fire science aspects of the experiment. I am recommending that co-author C.B. Clements from San Jose State University take a lead in revising the manuscript with respect to these two points.

## SPECIFIC COMMENTS

### Introduction

- Revise re comment made above regarding “natural forest fire”.

### Methods:

- What type of spruce?
- In terms of a burning prescription (see Alexander and Thomas, 2006), what in addition to wind direction was involved and how did it compare to what actually occurred (e.g., fire weather conditions, fuel moisture content, fire danger rating index)? This is important in case someone wanted to replicate your work. Suggest reviewing Alexander (2006, 2010).

### Results and discussion

- Does Finland use some form of a fire danger rating system. If so, then it would be useful to indicate what the fire danger indices were during the burn.
- Table 1 – I gather that “Tree Biomass” refers to the roundwood material? What portion is needle foliage? Was any attempt made to differentiate the roundwood material (i.e. the load by diameter size class)?

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- You indicated that “flaming was over within about 25 min” but elsewhere (e.g. the abstract) you indicate 2 h and 15 min). Active flaming in logging slash is typically 2 min (see Brown 1972) but isolated flaming in logging slash can last much longer.
- Any observations of average and maximum flame heights? Any ground photos during the flaming and smouldering phases? Did any spot fires develop outside the cut block?

## TECHNICAL COMMENTS

The title is not indicative of the content of the article. I would suggest something along the lines of “Emissions and Effects of Fire on Soil Properties from the Prescribed Burning of Logging Slash in the Boreal Forest of Finland”.

Table 2 caption – suggest this read “. . . during the prescribed fire experiment, the . . .”

Given that so many abbreviations and acronyms are used throughout the article would it not be useful to include a summary list?

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