Name(s)

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Project Number

J0909

Project Title

Stay Cool under Fire: Can Pre-moistening Soil beneath a Prescribed Burn Site Reduce Soil Temperatures?

Abstract

Objectives

The objective of this experiment was to see if pre-moistening soil is an effective way to limit soil temperature during a prescribed burn. If so, this might be an effective tool for minimizing temperature-induced impacts of prescribed burns.

Methods

A heat-resistant ruler with attached thermistors was buried in soil to measure soil temperature at 4 depths during and after a simulated prescribed burn over dry (control) and moist (test) soil.

Results

Maximum temperature in moist soil was reduced by ~50% at all 4 depths in each trial.

Conclusions

The results suggest pre-moistening soil could be an effective technique for lowering maximum temperatures during prescribed burns, and thus could minimize ecosystem damage.

Summary Statement

By pre-moistening the soil below a fire, I reduced maximum soil temperatures during test burns, showing that this may be a tool to reduce ecosystem damage from prescribed burns.

Help Received

I built the project apparatus. My parents helped me conduct the prescribed burns, including safety support, and my dad helped me understand some of the science behind my results.