

Project Proposal Form

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Effectiveness of smartphone IR devices to detect heat from within a burning tree

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Champion:

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Todd Nessman, BC Wildfire Service, Superintendent of Operations and Preparedness

Background:

The assessment of fire damaged trees in firefighter work areas can be particularly challenging in fuel types characterized by trees with numerous and perhaps hidden stem defects. Certain tree species that are more prone to heart rot can sustain persistent smouldering combustion inside the tree stem, with little or no outward indication to firefighters.

Issue:

There are suggestions that smartphone cameras with IR capability could potentially be used to detect combustion occurring inside a tree stem as part of a risk assessment process. The capability of such devices to detect heat from within a tree stem is currently unknown and outside of the intended design of the cameras. Conducting a proof of concept project for this application could be helpful for wildfire agencies when making decisions around potentially incorporating this type of technology into a risk assessment process related to tree stability.

Objective(s):

Test current smartphone IR cameras to determine if they can effectively detect heat from within a burning tree. Determine if such technology or capability is of greater benefit than current methods of assessment that rely on visual observation and assessor experience.

Approach:

This proposed project could continue along the line of inquiry by Jim Thomasson looking into the effectiveness of smartphone IR cameras. As discussed with Jim, a bolt of cedar could be bored out in order to place hot briquettes inside the log to simulate smouldering combustion inside a tree. Various smartphone IR cameras could then be used to take photos from different angles to test if interior heat can be detected externally with the cameras.