PROPOSAL NUMBER: BCWF-2013-01

DESCRIPTION: Matching helicopter coverage levels to fire intensity

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ISSUE: We lack information that matches coverage level to fire intensity.

BACKGROUND: Few studies have investigated—through field experiments—the effect aerial fire suppression has on fire behaviour. The Operational Retardant Evaluation (ORE) study conducted in the United States by George (1990) produced a list of recommended coverage levels, but these are poorly defined in terms of fire behaviour, are limited to retardant, and are based on fuel models from the US National Fire Danger Rating System (NFDRS). Results from studies in Australia by Loan and Gould (1986) and Plucinski (2005) were limited to water and foam, grass fuels, and low fire intensities (1000-4000 kW/m).

OBJECTIVE: Advance our understanding of how helicopter bucket drops reduce fire intensity in standing timber, and how this differs between products.

Determine the threshold fire intensity at which helicopter bucket drops no longer have the desired effect (i.e. reduce fire intensity to < 3000 kW/m).

APRROACH: Observe and record helicopter bucket drops on wildfires.

- Use video cameras (hand-held and Go-Pro) to capture drop and fire behaviour characteristics.
- Use quick-deploy thermal cubes to measure fire intensity.
- Use helicopter-tracking systems to measure bucket volume.
- Use GPS to measure aircraft speed and height.
- Use expert observation (aerial & ground).
- Use infra-red technology (FLIR?).
- Use voice-recording (?).