



Abstract

Firefighting Aircraft: Understanding Current Practices to Shape Future Response in a Changing World [†]

Crystal Stonesifer ^{1,*}, Cal Bryan ², Jude Bayham ², David Calkin ¹ and Erin Belval ¹

¹ USDA Forest Service, Rocky Mountain Research Station, 800 East Beckwith, Missoula, MT 59801, USA

² Department of Agricultural and Resource Economics, Colorado State University, Fort Collins, CO 80523, USA

* Correspondence: crystal.s.stonesifer@usda.gov

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Abstract: Climate change and human development are impacting wildfires and the ways they are suppressed around the world. Many countries utilize aircraft that deliver water or chemicals to curtail fire spread, and the use of these aircraft is also changing along with the demands for increased suppression capacity. In the United States, Forest Service managers have adapted the national fleet of large airtankers to shifting fire demands with, among other actions, adoption of modern jet-powered aircraft. However, there is strong public sentiment that more airtankers are required to fully tackle the growing wildfire suppression problem. In this work, we utilize a novel and comprehensive dataset of automated airtanker drop records to characterize national-scale use from 2017 through 2021 for the federal large airtanker fleet. Through characterization of where, when, and on what fires drops occurred, we demonstrate that relatively few fires, compared to all fires that receive airtanker drops, account for a disproportionate amount of total airtanker use. We examine spatial and temporal characteristics of these outlier fires to describe potential patterns in demand pulses, and we use this information to discuss implications for potential fleet size decisions with respect to meeting future firefighting aircraft demand in a changing world.

Keywords: fire suppression; airtankers; fire management; fire resources



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