Drought, fire and forests – lessons from 1851 and 2002

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Abstract. Studies of fire history in Colorado and the West reveal that large, severe forest fires such as those in 2002 are usually associated with regional drought conditions. High-elevation forests (spruce-fir and lodgepole pine) typically burn at centuries-long intervals because of the generally moist conditions at high elevations. Extensive fires in high-elevation forests occur almost exclusively in years of severe regional drought, and fires under these conditions tend to be high-intensity, stand-replacing burns. Fires in 2002 in spruce-fir forests of Colorado’s Flattops and Mount Zirkel areas exhibited behavior and severity typical of historical fires in these ecosystems. Fire frequency and behavior in lower elevation forests (ponderosa pine and Douglas-fir) is controlled by a complex interaction between climate, forest and fuels structure, and topography, as demonstrated in the 2002 Hayman fire. Managers should employ different strategies to manage fire and to reduce fire damage in high-elevation vs. low-elevation forests.

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