

# MODELING THE PROTECTION AFFORDED BY BURROWS, CAVITIES, AND ROOSTS DURING WILDLAND SURFACE FIRES

Anthony Bova and Matthew Dickinson<sup>1</sup>

<sup>1</sup>Physical Scientist (AB), and Research Ecologist (MD), U.S. Forest Service, Northern Research Station, Delaware, OH  
AB is corresponding author; to contact, call (740) 368-0093 or email at [abova@fs.fed.us](mailto:abova@fs.fed.us)

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Wildland surface fires produce many toxic and irritating compounds, such as formaldehyde and acrolein, and harmful gases such as carbon monoxide. Several factors influence the degree of protection offered by animal shelters against combustion products and heat. Prominent among these variables are shelter configuration, the velocity of the prevailing wind, and time of exposure. We employed Fire Dynamics Simulator software, available from the National Institute of Standards and Technology, to model the mixing of smoke and gases in an assortment of animal shelters, including bark flaps, burrows, and tree cavities. Preliminary results are presented, and we discuss the possibility of developing a comparatively simple general relationship to estimate shelter vulnerability.

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