Effects of Post-Fire Fuels Treatments on Vertebrate Communities in Southeastern Montana

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Federal policy calls for the removal of coarse woody debris (CWD) following forest wildfire in an attempt to reduce fire hazard. Many small mammal and cavity nesting bird species rely on CWD for cover, foraging habitat, and breeding sites in the post-fire environment. The response of small vertebrates to the removal of CWD is unknown. We investigated how post-fire salvage logging in a southeastern Montana ponderosa pine (*Pinus ponderosa*) forest affected small mammal and cavity-nesting bird populations in 2004 and 2005. We used point counts and distance sampling methods to estimate the density of cavity nesting birds on control (n = 16), salvage (n = 19), and reforestation (n = 8) treatments. We also used Mayfield estimates to compare nest survival of cavity nesting birds between control (n = 2) and salvage (n = 2) treatments. We used live traps arranged in trapping webs (r =130 m) to estimate density on control (n = 2), salvage (n = 2), and reforestation (n = 2) treatments using distance sampling methods. Small mammal density was greatest on the reforestation treatment in both years. Small mammals may have benefited from higher volume of ground CWD created by harvest operations. Density of cavity nesters was greatest on the control treatment. Nest survival was similar between treatments, but abundance of active cavities was greater on the control treatment where average snag size was larger. Small vertebrates appear to require CWD and adequate amounts should be retained following wild fire to maintain populations.