

A COMPARISON OF ABUNDANCE, NESTING SUCCESS, AND NEST-SITE CHARACTERISTICS OF CAVITY-NESTING BIRDS IN SALVAGE-LOGGED AND UNCUT PATCHES WITHIN A BURNED FOREST IN NORTHWESTERN MONTANA

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ABSTRACT

Fire suppression efforts over the past half-century have eliminated many high-intensity, stand-replacement fires that would otherwise have occurred in the northern Rocky Mountains. When stand-replacement fires do occur, they are often followed by salvage-logging operations which remove much of the standing dead timber. Subsequently, early postfire habitat is increasingly rare in the northern Rocky Mountains. Cavity-nesting birds are known to use burned forests, but little is known about the impact of salvage logging on these communities. This study was undertaken to determine whether there are differences in the cavity-nesting bird communities in salvage-logged and uncut patches within a burned forest.

A total of 800 acres (400 hectares) of mixed-conifer forest was surveyed; half each in salvage-logged and uncut sites. All sites had burned in an intense fire in October of 1991. A total of 426 nests of 19 different species of cavity-nesting birds were located. Species diversity and relative density were both higher on uncut sites compared to salvage-logged sites. Only seven species nested in both types of sites. For three of these species [house wren (*Troglodytes aedon*), mountain bluebird (*Sialia currucoides*), and northern flicker (*Colaptes auratus*)], nesting success was monitored during the summer of 1995. Some differences in nesting success were found between salvage-logged and uncut sites for some species.

Habitat characteristics at active nests and random points revealed that cavity-nesting birds used larger trees than were randomly available in uncut sites. Cavity nests in salvage-logged sites were generally limited to unmerchantable trees which had either physical flaws (bends, broken tops, etc.) or which were dead before the fire. For some species that nested in both types of sites (mountain bluebird, house wren), habitat characteristics at nests were similar between salvage-logged and uncut sites. For other species (northern flicker), nests in uncut sites had different habitat characteristics than nests in salvage-logged sites (e.g., larger diameter trees, nests located higher in taller trees). An understanding of habitat characteristics of trees and sites which are used by cavity-nesting birds should help to modify prescribed fires and salvage-logging operations to better provide appropriate postfire habitat for cavity-nesting birds.

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