NOT ALL FORESTS ARE DISTURBED EQUALLY: POPULATION DYNAMICS AND RESOURCE SELECTION OF BLACK-BACKED WOODPECKERS IN THE BLACK HILLS, SOUTH DAKOTA

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ABSTRACT

Black-backed Woodpeckers are a disturbance-dependent species that rely on burned forests and mountain pine beetle infestations. Efforts to prevent or mitigate the effects of these natural disturbances may lead to habitat loss for Black-backed Woodpeckers, a species of conservation concern. This dissertation evaluates the relative role of wildfire, prescribed fire, and mountain pine beetle infestations on population growth rates, home range size and resource selection, food resources, and movements of Black-backed Woodpeckers in the Black Hills, South Dakota. Mean population growth rates were positive only in habitat created by wildfire, and were negative in habitat created by mountain pine beetle infestations and fall prescribed fire. Home ranges were smallest in 1-2 year post-summer wildfire and were nearly four times larger in mountain pine beetle infestations. Apparent foraging success for wood-boring beetle larvae was greatest in habitat created by summer wildfire relative to mountain pine beetle infestations or fall prescribed fire, which may explain differences in population growth rates and home range size among habitats. Finally, Black-backed Woodpeckers were much more likely to disperse to burned forest relative to its availability across the landscape. However, as habitat created by summer wildfire aged, population growth rates and apparent foraging success declined, while home range size and the probability of dispersing away from summer wildfire increased. This suggests that conservation strategies should focus on ensuring 1-2 year post summer wildfire habitat is available for Black-backed Woodpeckers in the Black Hills, South Dakota.