

Occurrence Patterns of Black-backed Woodpeckers in Green Forest of the Sierra Nevada Mountains, California, U.S.A.

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Managing the highest quality, or primary, habitat for rare species is a common conservation approach. Secondary habitats, where the species occurs but at lower density, can provide refugia which may buffer declines due to loss of primary habitat.

Black-backed Woodpeckers (*Picoides arcticus*), a species of conservation interest in the Sierra Nevada, primarily occur in dense conifer forest that has recently burned at moderate or high severity. Their occurrence in green forest is not well known and conservation measures have focused on burned forest habitat. Due to fire suppression efforts, burned forest is uncommon in the Sierra Nevada. Even a low density population in green forest may be important to their conservation.

We used three years of Black-backed Woodpecker detections from a Sierra Nevada-wide avian monitoring program to better understand the patterns of their occurrence in green forest. We estimated that 21%

of 386 transects were occupied; much higher than had been assumed before our study. Occupancy was higher at high elevations, northerly latitudes, and flat slopes. They were also more likely to occur in forests with higher densities of dead trees, large trees, and areas dominated by lodgepole pine.

Black-backed Woodpeckers also occupied territories consistently across years and were not simply dispersing between nearby burned areas. Combined with 19 nest detections, our results provide a strong argument for their persistence in green forest of the Sierra Nevada.

While wildfires are expected to increase in size and severity in the Sierra Nevada, high elevation green forest is expected to decrease in extent in the northern Sierra as the climate warms through this century. We do not know whether the amount of burned forest habitat will be sufficient to sustain the population of Black-backed Woodpeckers in this portion of its range.

Traditional approaches to rare species conservation that focus solely on primary habitat may need to be reassessed in the face of rapidly changing climate conditions. Conservation of secondary habitats could provide important means for rare species to adapt to these drastic changes.

Main Points

Black-backed Woodpecker occupancy in high elevation green forest is higher than previously assumed.

Black-backed Woodpeckers were associated with high snag density, large trees and lodgepole pine forest.

Climate change may reduce this secondary habitat and imperil this rare species.

Managing for both primary and secondary habitat for rare species may be an important climate adaptation strategy as rapid changes in habitat occur.

Fogg, A.M., L.J. Roberts & R.D. Burnett. 2014. [Occurrence patterns of Black-backed Woodpeckers in green forest of the Sierra Nevada Mountains, California, USA](http://www.ace-eco.org/vol9/iss2/art3/). Avian Conservation and Ecology 9(2):3. [online] URL: <http://www.ace-eco.org/vol9/iss2/art3/>