

A quantitative evaluation of the conservation umbrella of spotted owl management areas in the Sierra Nevada

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Management of large and complex forest landscapes tends to be driven by concern for just a few species, typically due to limited budgets for ecological monitoring. The disadvantage of this approach is apparent when species that do not share the same habitats as those few focal species are “left out in the rain.”

In recent decades the focus of National Forest management in the Sierra Nevada has been on increasing the acreage of mature, closed-canopy forest, in part by protecting areas occupied by the California Spotted Owl (*Strix occidentalis occidentalis*).

We quantified the effect of this system of owl reserves on the broader avian community by comparing occupancy of the entire bird

community inside vs. outside Spotted Owl Home Range Core Areas in northeastern California.

Survey stations inside the Core Areas had higher average tree cover, lower shrub cover, and were located at lower elevations with less solar radiation. But, even after accounting for these factors, we found that more than twice as many species avoided Core Areas as favored them.

The species that favored the Core Areas had higher conservation and climate vulnerability scores on average, but many of the highest-scoring species avoided the Core Areas.

With the loss of old growth forests it is still important to conserve late-seral habitat. However, the loss of fire-created habitats and forest heterogeneity is also a threat

to biodiversity. Outside of the existing old growth forest reserves, early seral and heterogeneous forest conditions should be a priority for land managers in the Sierra Nevada.

Main Points

More than twice as many bird species avoided Spotted Owl reserves as favored them.

More species with the greatest conservation status and climate vulnerability avoided Core Areas.

Outside of old growth reserves managers should consider the needs of disturbance-dependent species by promoting heterogeneous and complex early seral forest.

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