



Point Blue Publication Brief

White-crowned Sparrow habitat choices, but not nest success, are influenced by vegetation change

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Changes in climate, vegetation, and land use can drive changes in the distribution and abundance of wildlife.

However, little is known about how these environmental changes impact habitat selection and reproductive success.

Point Blue's Palomarin Field Station serves as a platform for understanding how vegetation change affects bird populations.

Over the past 30 years, the habitat at Palomarin has been transitioning from shrubland to Douglas-fir forest. During this time, there has been an 85% decline in the local White-crowned Sparrow population. We used 30 years of data to understand how changes in the plant community affect White-crowned Sparrow reproductive success and habitat selection. We wanted to know if reproductive success declined as vegetation changed, or if sparrows avoided such a reproductive cost through habitat selection.

We found (1) a strong preference for nest locations in early successional vegetation

and (2) that among locations where White-crowned Sparrows chose to nest, there was no effect of vegetation on reproductive success. These results indicate that vegetation change drove changes in the nest sites used through habitat selection, and that habitat selection appeared to reduce any potential negative effects of vegetation change on per capita reproductive success.

Thus, our results suggest the decrease in the numbers of White-crowned Sparrows at the Palomarin Field Station has been driven by an avoidance of increasing late-successional habitat, rather than by a decline in reproductive success. Where suitable habitat remained, the sparrows maintained normal reproductive success.

In light of increasing environmental variation, it will be important to partition the effects of environmental change on habitat selection and reproductive success to predict population viability and extinction risk.

Main Points

Between 1981 and 2010 vegetation at the Palomarin Field Station changed from shrubs to dense conifers. During this time, the number of nesting White-crowned Sparrows at the study site declined by 85%. Despite this decline, reproductive success of White-crowned Sparrow nests remained constant.

These results demonstrate the ability of birds to track changes in vegetation through habitat selection and avoid a per capita demographic cost.

Porzig, E.L., N.E. Seavy, J.M. Eadie, T. Gardali, D.L. Humple, and G.R. Geupel. 2018. [There goes the neighborhood: White-crowned Sparrow nest site selection and reproductive success as local density declines](#). *Condor* 120:234-244.