

News Release: June 22, 2018

Zach Warnow, Director of Communications, (415) 786-5282, zwarnow@pointblue.org
Ryan Burnett, Sierra Nevada Director, (530)-258-2869, rburnett@pointblue.org

New Research: Wildfires' Effects on Birds in the Sierra Nevada

As we enter another wildfire season in California, attention will turn to the inevitable fires and efforts to extinguish them. After these fires burn, land managers are tasked with deciding how, where, and when to act to manage these new conditions. It is vital that land managers use the latest science to understand the effects that fire has on the ecosystem and the wildlife species that inhabit them. New research Point Blue Conservation Science explores these effects, looking at impacts of the severity of fire on birds and how that changes as the time since fire increases. Scientists looked across 10 fires up to 15 years after they burned through forests in the northern Sierra Nevada. Key among the findings is the observation that wildfire had a strong effect on the density of many of the bird species that were studied.

However, the severity of the fires affected different bird species differently. Of the 44 species studied, 18 reached their maximum densities after high-severity fire, 10 in moderate-severity, and 16 in areas affected by low-severity fire.

Over the last century humans have reduced the influence of fire across this ecosystem, but as the climate warms and the amount of fuels in these forests increase, the area burning annually and the severity of fires has been increasing. Understanding how species that rely on these forests respond to such fires can help inform management of fires and post-fire environments.

“One of the most important things we found was how varied the response was between areas that burned at different levels of severity as well the time after the fire it took for different species to reach their peak abundance,” said lead author Dr. Paul Taillie who was a field technician on the project with Point Blue and is now a researcher at North Carolina State University. “This reinforces the idea that mixed severity fires are crucial to sustaining a diversity of bird life in Sierra forests and that these burned landscapes are providing important habitat for decades after they burn.”

In addition to comparing the effects of different burn severities and the amount of time since fire, researchers also investigated more complex and nuanced responses of birds to fire than has been investigated in fire-prone western forests. Rather than simply increasing or decreasing consistently across the 15-year post-fire period, many species exhibited more complex patterns, for example increasing rapidly but reaching a plateau and then declining again. Other species' responses to burn severity varied across the 15 year post-fire period investigated.

The researchers also compared bird populations in post-fire forests to populations in unburned forests. Of the species studied, 30 percent had higher densities in burned forest, with all but one of those in areas of high severity fires. Just 11 percent reached greater densities in unburned forest.



“Our findings really illustrate how dynamic the avian community is after these fires. Many of the species peaked in density during a narrow window of time after fire in a specific burn severity class. We just don’t see this rapid change in the bird community in green forests even after mechanical fuel reductions. It suggests we be cautious in prescribing post-fire management actions that alter the trajectory of these forests,” said researcher Ryan Burnett, Sierra Nevada Director at Point Blue. “We hope this research helps land managers make informed decisions about managing these dynamic post-fire bird habitats.”

The article, “Interacting and non-linear avian responses to mixed severity wildfire and time since fire” (Taillie et al.) was published in the June issue of the peer-reviewed journal *Ecosphere*.

#

About Point Blue Conservation Science:

Point Blue advances conservation of birds, other wildlife and ecosystems through science, partnerships, and outreach. Our highest priority is to reduce the impacts of habitat loss, climate change, and other environmental threats while promoting nature-based solutions for wildlife and people, on land and at sea. Visit Point Blue at www.pointblue.org.