



Managing Shrub Habitats for Birds in the Sierra Nevada



Shrub-dominated habitats are a vital component of Sierra forests for numerous bird species. Over 20% of landbirds breeding in the Sierra Nevada nest in shrub habitat. These shrub communities appear at risk for several reasons. First, the role of fire has been and continues to be reduced in shaping the Sierra ecosystem. Second, forest management has moved away from practices that create early successional habitat in favor of ones that emphasize late seral closed canopy forests. Finally, in many areas shrubs have been targeted for elimination under fuels reduction projects - with mastication and even herbicide treatments being implemented. The cumulative effects of all of these management decisions, raise concern that open forest habitats that support a shrub understory and early successional shrub fields will decrease in quantity and quality in the Sierra Nevada and with them shrub-dependent birds and other wildlife.



Ryan Burnett

Strategies for Managing Shrub Habitat for Birds

With current management direction focused on increasing canopy cover and reducing fire hazards, shrub habitat is at risk. The needs of shrub-dependent birds can be met by incorporating the following recommendations into project planning and other management activities:

1. **Value Shrubs as important wildlife habitat.** All management activities that may impact shrub habitats should consider the ecological value of this habitat to wildlife.
2. **Manage group selects and post-fire for shrubs.** Timber harvest or fires that significantly reduce canopy in areas >5 acres can provide high quality habitat for shrub-dependent birds. Herbicide, mastication, and conifer release treatments that inhibit natural shrub regeneration eliminate important bird habitat.
3. **Prioritize mixed shrub habitats over monotypic stands** Mixed species shrub fields support greater diversity and densities of shrub-nesting birds than manzanita-dominated sites.
4. **Increase use of prescribed fire.** Fire can help regenerate senescing shrubs, reduce surface fuels that inhibit shrub recruitment, and thin encroaching conifers.

Key Shrub Bird Species

- Mountain Quail
- Calliope Hummingbird
- Dusky Flycatcher
- Olive-sided Flycatcher
- Yellow Warbler
- MacGillivray's Warbler
- Green-tailed Towhee
- Fox Sparrow
- White-crowned Sparrow



Peter LaTourette

Mountain Quail

Key Habitat Features

- Shrub Diversity
- >50% Shrub Cover
- >5 acre patch size
- Large Snags & remnant trees
- Leaf Litter



Ryan Burnett

Dusky Flycatcher on nest

Adaptive Management

A vital part of effective land management is developing a program of monitoring and adaptive feedback. Shrub habitats have been undervalued and little studied in the Sierra. Understanding the habitat features influencing shrub-dependent birds and their response to treatments is critical to ensuring the long-term viability of many of these birds. Bird monitoring is an ideal tool for providing inexpensive feedback on a whole community of organisms.



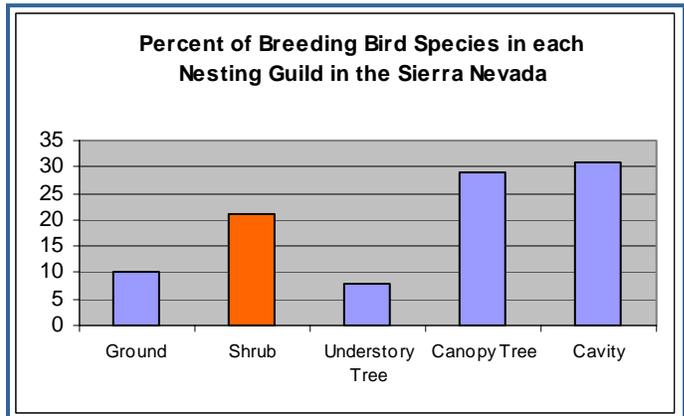
Fox Sparrow

Undesirable or Important Habitat?

Over 20% of the songbirds breeding in the Sierra nest in shrubs (see figure). Several species, including the Sierra Nevada subspecies of Fox Sparrow, are dependent on shrub habitat. Shrub fields are a source of fruit, nectar, and seeds used by shrub nesting birds, as well as adjacent forest nesting species.

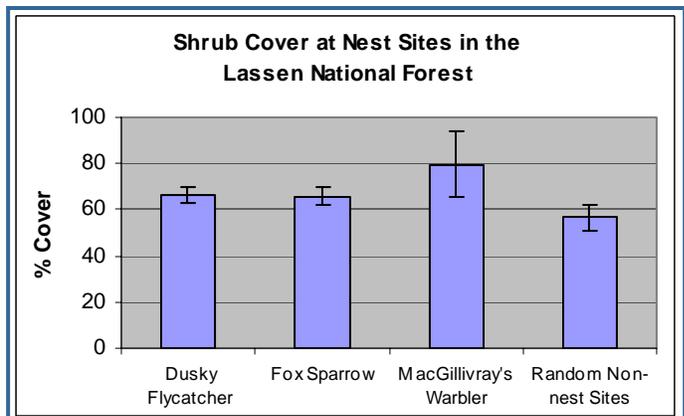
Clear Cuts and Stand Replacing Burns as Habitat

While much has been said about the negative effects wildfires and clear cuts have on wildlife habitat, they both can result in high quality early successional forest and shrub communities. A study in the Lassen National Forest showed that 40 acre clear cuts provided high quality habitat for a number of important bird species 10 to 20 years after being cut. These sites supported breeding territories for Olive-sided Flycatcher, Fox Sparrow, Yellow and MacGillivray's Warblers, and Dusky Flycatcher. Shrub cover at these sites averaged over 50% and nests of the 3 primary shrub bird species were located in areas with significantly more shrub cover within 5 meters of the nest than random non-nest sites (see figure below). Leaving small pockets of mature trees and maximizing snag retention in these areas may significantly increase bird diversity and woodpecker abundance.



Shrubs in the Forest

Historically, shrubs occurred in the understory of open conifer forest. Due to fire suppression and even-aged management, sites that once contained open forest habitat with shrub understory are now stocked with high densities of medium-sized trees that have shaded out shrubs and other understory plant species. Shrubs provide important understory structure and food sources for many bird species. Forest treatments should be designed to create conditions suitable for shrub recruitment and persistence within a forested matrix.



Resources

- ◆ Coniferous Forest Bird Conservation Plan ◆ www.prbo.org/calpif/
- ◆ PRBO Conservation Science Sierra Nevada Program ◆ rburnett@prbo.org
- ◆ Institute for Bird Populations ◆ www.birdpop.org/Sierra/spimon.htm
- ◆ US Forest Service PSW Sierra Nevada Research Center ◆ www.fs.fed.us/psw/programs/snrc/

