



Managing Aspen Habitat for Birds in the Sierra Nevada



Aspen are often out-competed by conifers in the Sierra Nevada, due to extensive livestock grazing and the absence of regular fire. As a result, the health of aspen has deteriorated and estimates suggest its extent in western North America has been reduced by as much as 96%. Aspen habitat, especially when associated with riparian vegetation, is the single most species-rich avian habitat in the Sierra Nevada. Several bird species of management interest are associated with aspen including Northern Goshawk, Red-breasted Sapsucker, Warbling Vireo, and Mountain Bluebird. With its disproportionate importance to birds and other wildlife, limited extent on the landscape, and significant loss and degradation, aspen restoration should be among the highest priorities of land managers in the Sierra Nevada.



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Strategies for Enhancing Aspen Bird Habitat

With the extensive loss and degradation of aspen throughout the Sierra, large-scale restoration efforts are called for to avoid further losses and increase the ecological value of this vital habitat. The following are a list of the most important considerations for managing aspen for breeding birds:

1. **Promote aspen regeneration and expansion.** This is the single most important management consideration to avoid further losses and degradation of this important habitat.
2. **Manage for multiple age and cover classes.** Smallest size classes of aspen are important predictors of avian richness.
3. **Restore riparian aspen communities.** When healthy, this is the single most species-rich habitat in the Sierra, supporting numerous birds species of management concern.
4. **Manage for dense and diverse understory.** Understory aspen and riparian shrubs are important for numerous avian species.
5. **Limit grazing and over-browsing.** Grazing and over-browsing can significantly reduce aspen regeneration, understory foliage volume, and the structural diversity important for numerous bird species. Grazing may also increase cowbird abundance which can negatively impact breeding birds.

Key Aspen Bird Species

Northern Goshawk
Red-breasted Sapsucker
Warbling Vireo
Western Wood-Pewee
Dusky Flycatcher
Tree Swallow
Mountain Bluebird
Swainson's Thrush
Chipping Sparrow



Peter LaTourrette

Mountain Bluebird

Key Habitat Features

Structural diversity
Dense herbaceous layer
Decay in Live stems
Cavities
Multiple size classes
Riparian shrub understory



Tree Swallow exiting aspen nest cavity

Adaptive Management

A vital part of effective aspen management is developing a monitoring and adaptive feedback framework. As aspen restoration treatments are a new practice in the Sierra Nevada, monitoring the treatment effects on the ecosystem and feeding information back into future management actions will result in the greatest benefit to wildlife and achieving other restoration objectives. Bird monitoring is an ideal tool for providing cost-effective feedback on a whole community of organisms.



Red-breasted Sapsucker

Response to Treatment

In the Eagle Lake Ranger District (ELRD) of the Lassen National Forest (LNF), within five years treated stands had higher species richness and abundance of most key aspen species, including woodpeckers, Mountain Bluebird, and Chipping Sparrow. Treated sites were flush with new aspen growth and a lush understory vegetation community. We expect restored sites to support even greater avian diversity and abundance as more structural complexity and foliage volume develops at treated sites.

Cavity Nesting Birds

Numerous studies have shown aspen is an important habitat for cavity nesting birds. In the ELRD woodpeckers were 2 to 3 times more abundant at restored aspen sites than either untreated aspen or non-aspen conifer sites (see figure). Woodpeckers play a vital role by creating cavities for use by a vast array of birds and other wildlife species. Key management actions to benefit cavity nesting birds:

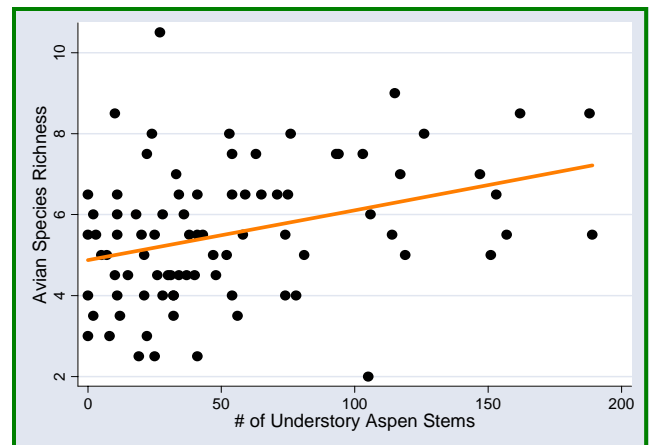
- ◆ Significantly reduce conifer cover
- ◆ Retain dead and dying aspen stems
- ◆ Retain large conifer snags & some large logs



Structural Diversity

The great structural diversity associated with healthy aspen stands is likely a primary reasons this habitat supports such a diverse assemblage of avian species. In the ELRD, the best predictor of avian richness was understory aspen stems. This feature has been lost in many stands due to overgrazing and browsing, and conifer encroachment. Ensuring that this habitat component is represented on the landscape in perpetuity is critical to providing high quality aspen bird habitat. Structural diversity can be achieved by:

- ◆ Aspen release through conifer removal
- ◆ Limiting grazing and over-browsing of stands
- ◆ Removing excessive conifer duff and slash



Aspen Resources

- ◆ Aspen Delineation Project ◆ www.aspensite.org
- ◆ Lassen National Forest Aspen Restoration Team ◆ trickman@fs.fed.us
- ◆ Riparian Bird Conservation Plan ◆ www.prbo.org/calpif/html/docs/riparian.html
- ◆ US Forest Service RMRS Aspen Restoration Site ◆ www.fs.fed.us/rm/aspen/
- ◆ PRBO Conservation Science Sierra Nevada Program ◆ rburnett@prbo.org
- ◆ US Forest Service PSW Sierra Nevada Research Center ◆ www.fs.fed.us/psw/programs/snrc



For more information contact Ryan Burnett, rburnett@prbo.org, PO BOX 634, Chester, CA 96020