



# Managing Post-Fire Habitat for Birds in the Sierra Nevada

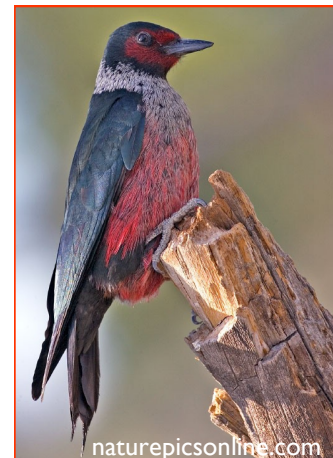


In the Sierra Nevada, considerable debate surrounds the management of post-fire habitat, especially those that burned at moderate to high severity. After over a half century of fire suppression, the area affected by wildfire appears to be increasing back towards pre-suppression levels. With increasing recognition of the critical role of fire in shaping and maintaining the ecosystem there is a growing need to understand the value of habitats created by wildfire and the critical elements required by the unique and relatively diverse avian community that occupy them. Post-fire habitats are not blank slates or catastrophic wastelands, but rather an important part of the ecosystem. Management actions in post-fire habitat will affect the forest composition that will exist there for decades to come thus post-fire management requires careful consideration of the species that are using them now and those that will well into the future.



## Focal Bird Species

- Mountain Quail
- All Woodpeckers
- Olive-sided Flycatcher
- Mountain Bluebird
- American Robin
- Lazuli Bunting
- Chipping Sparrow
- Fox Sparrow



Lewis' Woodpecker

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## Strategies for Managing Post-fire Bird Habitat

Moderate to high severity post-fire habitat is an important component of Sierra Nevada for sustaining biodiversity. Many bird species reach their greatest abundance in these habitats with most sensitive to management actions prescribed following fires, such as salvage logging and shrub abatement.

1. **Retain large patches with high snag density.** Snags are valuable for nesting and harbor important food resources for birds in post-fire habitat.
2. **Manage for dense and diverse shrub habitats.** Post-fire shrub habitats support a diverse bird community including species that are rare or declining in the Sierra and they provide an abundant food resource for many bird species.
3. **Promote habitat mosaics.** Bird species richness is often highest at the juxtaposition of unlike habitats in the Sierra.
4. **Promote herbaceous understory.** Flowering plants can proliferate after fire and provide a unique and important food resource for many bird species including hummingbirds, sparrows, & finches.

## Key Habitat Features

- High Snag Densities
- Lush herbaceous layer
- Dense shrub component
- Hardwood regeneration
- Habitat Mosaics
- Open canopy and edges



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Lazuli Bunting

## Adaptive Management

A vital part of effective habitat management is developing a monitoring and adaptive feedback framework. With the importance of post-fire habitat to many species and the sensitivity they show to post-fire management prescriptions, understanding the habitat needs and response to different approaches is critical. Avian monitoring is an ideal tool for providing cost-effective feedback on a whole community of organisms and can help ensure post-fire management meets the needs of a unique and relatively diverse group of species.

## Salvage vs. Natural Regeneration

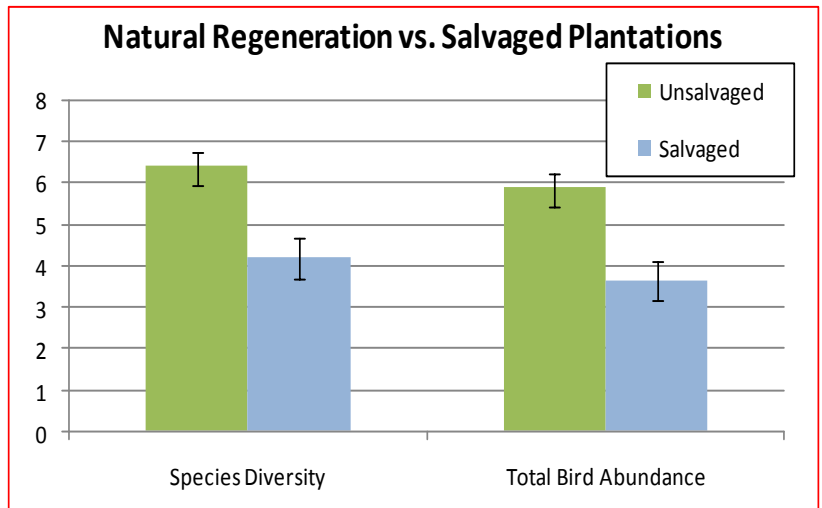
In the Northern Sierra, Forest Service land that was not salvage logged supported a significantly more diverse and abundant avian community than adjacent private land that was heavily salvaged and replanted. In high severity burn areas snags and understory vegetation provide some of the only available habitat for decades following fire. Areas where these features have been eliminated and dense stands of young conifers have been planted support far fewer species even a decade after re-planting. Natural regeneration should be among the most important strategies for managing post-fire for birds and other wildlife.



## Cavity Nesting Birds

Numerous studies show the importance of moderate to high severity post-fire habitat for cavity nesting birds, especially woodpeckers. Existing snags are important for nest sites in the first few years following burns when fire killed trees are too hard to excavate. Woodpeckers play a vital role by creating cavities that are used by a vast array of birds and other wildlife species such as bluebirds, chickadees, and kestrels

and thus are important for promoting avian diversity in post-fire areas. Snags created by fire are used for decades by species such as Lewis' and White-headed Woodpeckers.



## Shaping Future Forests

Forests that have burned at moderate to high severity provide a unique opportunity for managers to promote desired future conditions. Creating habitat mosaics by considering patch size and location and maintaining snag patches throughout the fire, including the periphery, will promote current and future habitat for birds. Allowing natural tree regeneration will help promote future forest species and structural diversity. In areas slated for replanting consider lower density plantings and uneven spacing to promote clumps interspersed with openings that promote understory plant vigor and suitable conditions for shade intolerant tree regeneration well into the future.

## Post-fire Habitat Resources

- ◆ Sierra Nevada Avian Monitoring Information Network - <http://data.prbo.org/apps/snamin/>
- ◆ Birds and Burn Network - <http://www.rmrs.nau.edu/wildlife/birdsandburns/>
- ◆ IBP's Black-backed Woodpecker Project - <http://www.birdpop.org/Sierra/bbwo.htm>
- ◆ Rocky Mountain Research Station Post-fire Studies - <http://www.rmrs.nau.edu/people/vsaab/>
- ◆ For more information contact Ryan Burnett with PRBO's Sierra Nevada group - [rburnett@prbo.org](mailto:rburnett@prbo.org)

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