The Greater Santa Fe Fireshed Coalition

BRIEFING PAPERS

Bird Habitat

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THE INTERSECTION OF BIRD HABITAT AND FOREST RESTORATION IN THE SOUTHWEST

As forest managers respond to forest stressors such as drought, climate change, bark beetle infestations, and high intensity wildfire by thinning forests and applying prescribed burns with the intent to reduce fuel loads, habitats of both resident and visiting migratory bird species may be altered. The impacts of forest management activities on the winged wildlife of our Southwest forests can be stratified by bird species, vegetation type, and the short term or long term. From a wide-lens perspective, the overall effect of forest restoration bodes well for the birds of the forest.

Olive-sided flycatcher. Credit: David L. Hawksworth, USFS, RMRS

It may seem counterintuitive to think that fewer trees in the forest promotes the well-being of birds, but scientific research offers clarification. It's important to recognize that forest thinning differs from timber harvesting. Thinning reduces fuel quantities and habitat homogeneity to have less impact on bird communities than commercially oriented timber harvests. Scientist Deborah M. Finch and Wildlife Biologist Karen E. Bagne investigated the effects of thinning on birds where tree density was reduced about 85% from approximately 1240 to 190 trees ha-1 within the Santa Fe Municipal Watershed's ponderosa pine forest.

SO, HOW DID THOSE BIRDS FARE?

- 14 species had consistently positive responses to thinning treatments.
- 7 species had negative responses, but only for a year or two.
- 7 species had no response.
- 1 species, Warbling Vireo had a mixed response.
- 11 birds that benefitted from the forest treatments are *Species of Conservation Concern*
- 1 of this select group, Grace's Warbler, has a borderline brief negative response.

Populations of 14 bird species had consistently positive responses to thinning treatments persistently while 7 species had negative responses, but only for a year or two. Warbling Vireo had a mixed response to the treatments, and 7 species showed no response. Certain species favor open forest conditions, and these species fared well after thinning. With the exception of the Hermit Thrush, there were no strong negative responses for species that prefer closed canopy conditions. Notably, of the birds that benefitted from the forest treatments, 11 are Partners in Flight's Species of Conservation Concern for the southern Rocky Mountain region. Of this select group, only Grace's Warbler had a borderline brief negative response, leaving room for optimism that under similar treatment circumstances, forest thinning treatments may be a boon for both forest restoration and critical bird habitat. Wise forest management aims at including habitat for the full range of species known to occupy the area, including those that respond positively to thinner forests but also those that require denser forests.

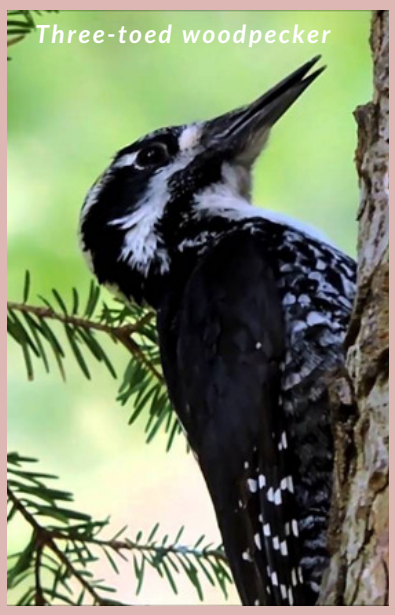
BIRD HABITAT AND FOREST RESTORATION

FIRE CREATES HABITAT

When forest managers conduct prescribed burns to reduce fuel loads and restore fire regimes to their historic intensities, a secondary benefit is promotion of habitat for birds that nest in or use shrubs and herbaceous vegetation by increasing those vegetation layers. Forest treatments change the composition of available foods, alter their nutritive content, and break up homogenous cover types. The impacts of prescribed burns on birds vary by ecosystem type. In the pinyon-juniper ecosystem, untreated areas served as habitat for tree nesting birds; in ponderosa pine, burns benefitted birds by increasing food production and nutritive content. Researchers from the Birds and Burns Network analyzed bird responses to prescribed fire and documented varied responses among the birds. While residents tended to have positive or neutral response, migratory songbirds tended to decline during the burn year. Generally, those bird species that initially exhibited negative population responses recovered to postfire levels within a year. Density of standing dead trees, nesting habitat for cavity birds, increased in post prescribed burns. The best way to support bird populations is by careful planning and incorporating variable fire intensity, either as a stand-alone prescription, or in conjunction with fuel reduction programs.

HOME IS A DEAD STANDING TREE

Prescribed burn



Three-toed woodpecker

For humans, a burned home is a tragedy. But for cavity-nesting birds, fires that kill large trees actually create habitat when the birds excavate holes to create nests. Fire-injured trees also attract insects such as bark and wood-boring beetles, benefitting bark-gleaning birds. Researchers were surprised to find that the majority of prescribed fires created more snags than were consumed, even in valuable large-diameter classes that signify greater habitat longevity. As post-fire time progresses (2-3 years), more snags become available as trees die.

Crown scorch and decay processes then allow birds to more easily excavate their nesting sites. One species designated as sensitive, the three-toed woodpecker, was observed nesting in newly created snags following prescribed burn operations. In some cases, the opposite findings have also been reported if the prescribed fire is intense enough to consume the snag.

This briefing paper was developed by USDA Forest Service Rocky Mountain Research Station Scientist Deborah M. Finch and Postdoctoral Wildlife Biologist Karen E. Bagne, and was produced by the Forest Stewards Guild.

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The Greater Santa Fe Fireshed Coalition is a partnership of agencies, private organizations, and concerned citizens who are working to build resilient ecosystems, protect watersheds, and reduce wildfire risk to the forests and communities in and around Santa Fe.