

Fire and Conservation Biology of Florida Scrub Jays

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Xeric-adapted oak habitats in Florida occur on excessively drained, nutrient-poor sands. Oak scrub was once widespread across the peninsula, where it was maintained in an open, low-growing condition by frequent fire. Without fire, scrub becomes tall and dense and loses its typical bare-sand substrate, and its plant diversity and acorn production decline. The Florida Scrub Jay (*Aphelocoma coerulescens*) is a rare and declining endemic species that once occupied scrub throughout the Florida peninsula (1). Individuals live in family groups on permanent territories and cache thousands of acorns each fall to use as food in winter (2). Families exhibit a highly organized sentinel system, which depends on low-growing vegetation structure of periodically burned scrub (3). Birth rate declines and mortality increases in the absence of fire (4). Paradoxically, Florida Scrub Jays also decline locally immediately after large burns, because both cover and acorns are reduced drastically for several years. Optimal conditions for jays (and many other scrub organisms) occur between four and 15 years after a fire. Its responses to fire render the Florida Scrub Jay extremely vulnerable in a fragmented landscape. Originally, natural scrub fires were large but patchy, leaving a mosaic of scrubs in different stages of postfire succession. Even extensive fires would not have extirpated jays because regenerating scrub was always available nearby. Today, however, humans have eliminated 85% of the original oak scrub in Florida, and have suppressed fire for decades wherever scrub persists. By eliminating both the habitat and the fire from most of their range, humans have eliminated most Florida Scrub Jays. Those that remain mostly occur in small and isolated populations, which are subject to local extinction from many causes. In small habitat preserves, jays have little refuge when fire temporarily lowers habitat quality. Therefore, survival of the scrub ecosystem, along with its many endemics, including the jay, now depends completely on human management of the landscape. Management must incorporate careful attention to the proper temporal and spatial distribution of fires.

Literature: 1. WOOLFENDEN, G. E., & FITZPATRICK, J. W.: Monogr. Popul. Biol. No. 20. 2. DEGANGE, A. R. et al.: Ecology 70: 348-356. 3. MCGOWAN, K. & WOOLFENDEN, G. E.: Anim. Behav. 37: 1000-1006. 4. FITZPATRICK, J. W. et al.: Florida Game and Fresh Water Fish Comm., Nongame Tech. Report No. 8.

FLORIDA SCRUB JAY HABITAT QUALITY IN RELATION TO TIME SINCE FIRE. JAYS MOVE TOWARD THE OPTIMAL "WINDOW" FROM BOTH UNBURNED AND RECENTLY BURNED SCRUB.

