



Nests Under Fire: Does it Matter? Growing-season Burns and Ground-nesting Birds

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Prescribed burning during the growing season expands the window for completing annual burn plans, mimics natural fire regimes in much of the South, and achieves ecological effects that vary considerably from dormant season burns. One concern with burning in the growing season (March to September) is potential impacts to birds that nest on or close to the ground, ranging from game birds, such as northern bobwhite and wild turkey, to rare species like Bachman's and Henslow's sparrows. Timing prescribed burns to avoid ground nests has been an important topic in the South for 80 years. During much of that period, the general guideline for game birds was to burn in late winter or early spring, after hunting season and before the nesting season. Research over the last 25 years has generally shown that even with burns during the nesting season, overall effects on breeding success and population levels may be less than believed earlier. In some ways, fire may even improve the well-being of ground nesting birds by diverting predators from the area (Conner et al 2011). This fact sheet summarizes recent publications on the effects of growing-season burns on ground-nesting birds.

The first detailed review of growing-season burn effects in the South was published by Tall Timbers Research Station (Robbins & Myers 1992). In summarizing effects on birds (especially quail and turkey), Robbins and Myers stated, "We cannot conclude that there is clearly a best time to burn for



For game species, such as northern bobwhite quail, lightning-season burns provide habitat and forage diversity essential for nesting and brood rearing. PHOTO BY LARRY KORHNAK.

maintaining natural population levels of ground-nesting birds." Seasonal effects are also closely tied to fire frequency, and may be influenced by fire size and patchiness. Robbins and Myers concluded that more "long-term studies are needed." In the last two decades, significant progress has been made toward understanding those long-term effects. Two recent research reviews shed new light on seasonal effects of burning (Cox & Widener 2008, Knapp et al. 2009).

Cox and Widener summarized specific effects on seven bird species that nest in southern pinelands (northern bobwhite, wild turkey, red-cockaded woodpecker, Henslow's sparrow, brown-headed nuthatch, Bachman's sparrow, and loggerhead shrike). Most of these and other species prefer to nest or forage within one to two years after a burn so they are less likely to be in stands with fire returns longer than two years. For example, over 85 percent of Bachman's sparrow nests in a five-year study were in areas burned during the previous growing season. This species is endemic to the South and has a long nesting season (late March through early September) that allows re-nesting to occur regularly following a growing-season fire. On the other hand, Henslow's sparrow nests far to the north and only visits the South during the winter months. Dormant-season burns may disrupt winter habitat for both Henslow's and Bachman's sparrows (Thatcher et al. 2006, Cox & Jones 2009), while lightning-season fires (May to September in Florida) may lead to better over-winter food resources and habitat structure. Burning from July through September will have little effect on most birds since they will have completed their nesting. Both the brown-headed nuthatch and loggerhead shrike also nest in late winter to early spring at a time when dormant-season burns may be detrimental to nesting success. For all these species, lightning-season burns may provide additional benefits of improved habitat and food resources for nesting and brood rearing the following year. For the game species, both dormant- and lightning-season burns provide habitat and forage diversity essential for nesting and brood rearing. Turkey and quail foraging is especially common in areas burned in the last two years. Cox and Widener summarized several studies that looked at bird populations in general, finding that population numbers and diversity were similar when compared across dormant- and lightning-season burn plots. Fitzgerald and Tanner (1992) had similar results in dry prairies in south



Research has shown that populations of ground-nesting birds, such as the loggerhead shrike, benefit from growing-season burns. PHOTO BY LARRY KORHNAK.

Florida.

Cox and Widener concluded that only a small percentage of the nests of the species reviewed are actually lost during lightning-season burns and the losses are offset by overall habitat improvements and wider burning windows. Burning during the growing season can be an important method for maintaining a two-to three-year fire interval on many conserved lands. Their primary caution is that lightning-season burning may not be applicable to long unburned sites. It may take many years of dormant-season burning before a site is ready for a growing-season burn, and some vegetation types may never burn well during the growing-season when relative humidity is high. Their final recommendation: “Otherwise, fires should be lit when they have the greatest chance of success, given that maintaining a high fire frequency (one-to-three year interval) is the most important goal for providing appropriate habitat conditions for many declining pineland birds.”

The nationwide review of prescribed fire season ecological effects (Knapp et al. 2009) included a section on southeastern forests that evaluated vegetation, animal, and soil effects. They reached a conclusion similar to Cox and Widener: “Few if any effects of burning season on bird populations...many bird species re-nest, and the indirect benefits of habitat alteration are usually far more important and likely compensate or more than compensate for losses” (p 58). They also stressed the importance of spatial patchiness within burns and among burns in different years, although the effects of patchiness have not been as widely tested as fire frequency and season.

RECOMMENDATIONS

Based on recent research and literature reviews, growing-season burns do not appear to be detrimental to many bird species and may, in fact, benefit others. Fire return intervals of two to three years in ecosystems that have been previously managed with fire will generally favor the most species, especially when there is a level of patchiness associated with the burn regimes. In such fire-managed systems, an occasional longer interval or dormant-season burn may add to the diversity. Finally, it is important to remember that even with frequent prescribed fire only a small portion of any habitat type will generally be impacted in a given year, and thus long-term maintenance of pine savannah (or any other fire-maintained habitat) far outweighs the local impact.

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