

Prescribed burning effects on nesting by Eastern Bluebirds (*Sialia sialis*) in a restored Ozark border landscape

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Abstract

As humans have expanded in population and range, fire has often been suppressed to help humans at the cost of the environment (Pausas, Keeley, 2009). Recently, prescribed burning has been brought about as a land management practice to reduce fuel loads and bring back historical fire regimes that aided the landscape in the past (Pausas, Keeley, 2009). At Shaw Nature Reserve, prescribed burning is a method of invasive species management as well as a way to promote native plant diversity (Shaw Nature Reserve, 2017). While the purpose of prescribed burning is for the plant community, the effects of fire on the Eastern Bluebird (*Sialia sialis*) are unknown. Shaw Nature Reserve is home to a Bluebird Trail that consists of 86 nest boxes. Using a logistic exposure model described by Shaffer (2004), the daily survival rate of bluebird nests was calculated, along with daily nest predation rates. In addition, using a general linear mixed effects regression model, the average number of eggs and fledglings were analyzed and compared among burned and mowed management units, as well as at different time intervals since the last fire in a management unit. Contrary to many pieces of literature, our analysis yielded no significant results. The bluebirds at SNR are surviving at a high rate and neither burning nor time since fire affected nest success. Though there were not significant changes in this study, there are still other aspects of nesting that could be used to determine effects of fire.