Project Highlight – SD State Wildlife Grant

Project Type Research

Title Importance of mountain pine beetle infestations and fire as black-backed woodpecker habitat in the Black Hills, South Dakota

In a nutshell The black-backed woodpecker is a permanent Black Hills resident that reacts to disturbances to its forest habitats. Birds inhabit recently burned areas and rely on an associated food source, mountain pine beetles. This study examined the relative importance of fire and mountain pine beetle infestations to black-backed woodpeckers using a variety of field techniques.

Relevant Species of Greatest Conservation Need

- Black-backed woodpecker (*Picoides arcticus*)

Relevant Habitats pine forests

Cooperators University of Missouri – Columbia (Joshua Millspaugh; graduate student Christopher Rota) and U.S. Forest Service (Mark Rumble)

Purpose

Understand the relative importance of fire and mountain pine beetle infestations (MPB) on population and habitat selection processes of black-backed woodpeckers (BBWO):

- estimate home ranges during the breeding season, fall, and winter in recently burned and MPB habitats
- document seasonal time budgets in recently burned and MPB habitats
- compute general and forage resource selection models for BBWO
- develop a demographic population model that compares BBWO demographics in burned and MPB habitats of the Black Hills, SD

Timeframe 2008 - 2011

Location Black Hills of South Dakota

Summary or Important Findings

- Burned forests may provide better habitat for this species than mountain pine beetle infestations, although MPB infestations provide valuable habitat.
- MBP infestations may be more important in areas without recently burned forest.
- An ideal management strategy for this species in this region is to have a mosaic of burned or MPB infested forest in patches from 50 – 3,000 acres.
- An additional management recommendation was to allow isolated MPB infested forests to be unharvested.

Best contact person Josh Millspaugh, UMC

More Information

Rota, C. T. 2013. Not all forests are disturbed equally: Population dynamics and resource selection of black-backed woodpeckers in the Black Hills, South Dakota. Ph.D. Dissertation, University of Missouri-Columbia.

Rota, C. T., D. C. Kesler, C. P. Lehman, M. A. Rumble, J. J. Millspaugh. 2012. The importance of wildfire and mountain pine beetle infestations as Black-backed Woodpecker habitat. Final report to South Dakota Department of Game, Fish and Parks, Agreement 05-0600-085.

Scientific articles resulting from this project:

Bonnot, T. W., J. J. Millspaugh, and M. A. Rumble. 2009. Multi-scale nest-site selection by black-backed woodpeckers in outbreaks of mountain pine beetles. Forest Ecology and Management 259:220-228.

Bonnot, T. W., M. A. Rumble and J. A. Millspaugh. 2008. Nest success of black-backed woodpeckers in forests with mountain pine beetle outbreaks in the Black Hills, South Dakota. Condor 110(3):450-457.

Lehman, C. P., D. C. Kesler, C. T. Rota, M. A. Rumble, E. M. Seckinger, T. J. Juntti, and J. J. Millspaugh. 2011. Netguns: a technique for capturing Black-backed Woodpeckers. J. Field Ornithology 82(4):430-435.

Rota, C. T., M. A. Rumble, J. J. Millspaugh, C. P. Lehman and, D. C. Kesler. 2014. Space-use and habitat associations of Black-backed Woodpeckers (*Picoides arcticus*) occupying recently disturbed forests in the Black Hills, South Dakota. Forest Ecology and Management 313 (2014) 161-168.

Rota, C. T., J. J. Millspaugh, M. A. Rumble, C. P. Lehman, and D. C. Kesler. 2014. The role of wildfire, prescribed fire, and mountain pine beetle infestations on the population dynamics of black-backed woodpeckers in the Black Hills, South Dakota. PLoS ONE 9(4):e94700.doi.10.1371/journal.pone.0094700