Project Highlight – SD State Wildlife Grant

Project Type Research

Title Burrowing owl distribution and nest site selection in western South Dakota

In a nutshell This study examined how burrowing owls are distributed at prairie dog colonies in western South Dakota to try to determine characteristics that favor burrowing owl use of prairie dog colonies at colony and landscape scales.

Relevant Species of Greatest Conservation Need

- Burrowing owl (*Athene cunicularia*)

Relevant Habitats burrowing rodent colonies

Cooperators South Dakota State University (Charles Dieter; graduate student Jason Thiele) and Dakota State University (Kristel Bakker)

Purpose

- Determine distribution of burrowing owl occupied black-tailed prairie dog colonies on 50% of known colonies in western South Dakota
- Construct a database of black-tailed prairie dog colonies containing multiple burrowing owl pairs which includes size, ownership and management of colonies
- Describe local vegetational habitat factors associated with occurrence and density of burrowing owls in black-tailed prairie dog colonies
- Describe habitat associations (active/inactive black-tailed prairie dog colonies, poisoning and grazing regimes, ownership of colonies), colony and landscape level factors affecting burrowing owl use of black-tailed prairie dog colonies
- Compare vegetation, habitat associations, colony- and colony- and landscape-level characteristics of burrowing owl occupied and unoccupied colonies
- Determine factors associated with nest site selection by burrowing owls in select colonies

Timeframe July 2009 – June 2012

Location western South Dakota

Summary or Important Findings

- Burrowing owls were surveyed in black-tailed prairie dog colonies in 27 counties in western South Dakota.
- A set of variables, such as colony size and percent of trees, grassland and cropland at certain distances from nest burrows, was measured to identify which impacted nest site selection.
- The model indicated that burrowing owls in the study area nested in landscapes with limited tree cover. At a more local scale, owls selected portions of prairie dog

colonies with relatively high percent cover of forbs and bare ground and relatively low visual obstruction readings.

- Threats to burrowing owls include habitat conversion, loss of prairie dogs to sylvatic plague and poisoning and shooting by prairie dog shooters.

Best contact person Dr. Charles Dieter, SDSU

More Information

Thiele, J. 2012. Burrowing owl distribution and nest site selection in western South Dakota. M.S. Thesis, Biological Sciences, South Dakota State University, Brookings. 140 pp.

Scientific publications resulting from this project:

Thiele, Jason P., K. K. Bakker, and C. D. Dieter. 2013. Multiscale nest site selection by burrowing owls in Western South Dakota. Wilson Journal of Ornithology 125(4):763-774.