

## Project Highlight – SD State Wildlife Grant

**Project Type**        Research

**Title**    Understanding the relationship between prairie dog ecology and black-footed ferret resource selection

**In a nutshell**        A self-sustaining black-footed ferret population inhabits part of the Conata Basin in southwestern South Dakota, depending on a population of black-tailed prairie dogs. This study focused on how ferrets compete for and select prey and other resources within prairie dog colonies and to more specifically measure how prairie dogs are distributed within colonies.

### **Relevant Species of Greatest Conservation Need**

- black-footed ferret (*Mustela nigripes*)

**Relevant Habitats**    prairie dog ecosystem

**Cooperators**        University of Missouri – Columbia (Dr. Josh Millspaugh; graduate student David Eads)

### **Purpose**

- Measure the spatial distribution of prairie dogs at multiple spatial scales through state-of-the-art resource monitoring and GIS techniques.
- Measure resource selection by ferrets and relate resource selection to the spatial distribution of prairie dogs.
- Measure prey selection by ferrets.

**Timeframe**    2007 - 2009

**Location**        Conata Basin, southwestern South Dakota

### **Summary or Important Findings**

- The influences of active prairie dog burrows, edge effects, resource connectivity and predators were measured on ferret resource selection.
- Black-footed ferrets selected areas with abundant active burrows.

**Best contact person**        Dr. Josh Millspaugh, UMC

### **More Information**

Eads, D.A. 2009. Evaluation and development of black-footed resource selection models. M.S. Thesis, University of Missouri, Columbia.

Scientific publications resulting from this project:

- Jachowski, D.S., J.J. Millspaugh, D.E. Biggins, T.M. Livieri, and M.R. Matchett. 2008. Implications of black-tailed prairie dog spatial dynamics to black-footed ferrets. *Natural Areas Journal* 28:14-25.
- Jachowski, D.S., J.J. Millspaugh, D.E. Biggins, T.M. Livieri, and M.R. Matchett. 2010. Home-range size and spatial organization of black-footed ferrets *Mustela nigripes* in South Dakota, USA. *Wildlife Biology* 16:66-76.
- Eads, D. A., J. J. Millspaugh, D. E. Biggins, T. M. Livieri, and D. S. Jachowski. 2011. Post-breeding resource selection by adult black-footed ferrets in the Conata Basin, South Dakota. *Journal of Mammalogy* 92:760-770.
- Eads, D.A., D.E. Biggins, D.S. Jachowski, T.M. Livieri, J.J. Millspaugh, and M. Forsberg. 2010. Morning ambush attacks by black-footed ferrets on emerging prairie dogs. *Ethology, Ecology & Evolution* 22:345-352.
- Eads, D. A., J. J. Millspaugh, D. E. Biggins, D. S. Jachowski, and T. M. Livieri. 2011. Evaluation of a black-footed ferret resource selection model. *Journal of Wildlife Management* 75:1155-1163.
- Jachowski, D.S., J.J. Millspaugh, D.E. Biggins, T.M. Livieri, M.R. Matchett, and C.D. Rittenhouse. 2011. Resource selection by black-footed ferrets in South Dakota and Montana. *Natural Areas Journal* 31:218-225.
- Eads, D. A., D. E. Biggins, D. Marsh, J. J. Millspaugh, and T. M. Livieri. 2012. Black-footed ferret digging activity in summer. *Western North American Naturalist* 72:140-147.
- Eads, D. A., D. S. Jachowski, D. E. Biggins, T. M. Livieri, M. R. Matchett, and J. J. Millspaugh. 2012. Resource selection models are useful in predicting distributions of black-footed ferrets in prairie dog colonies. *Western North American Naturalist* 72:206-215.
- Eads, D. A., D. S. Jachowski, J. J. Millspaugh, and D. E. Biggins. 2012. Lunar and temporal influences on post-breeding spotlight surveys of adult black-footed ferrets *Mustela nigripes*. *Western North American Naturalist* 72:179-190.