

# EVALUATION AND DEVELOPMENT OF BLACK-FOOTED FERRET RESOURCE SELECTION MODELS

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## ABSTRACT

Resource selection function (RSF) and utilization function (RUF) models aid in evaluating habitat suitability and investigating hypothesized mechanisms of space use of wildlife. We monitored post-breeding resource selection of adult black-footed ferrets (*Mustela nigripes*) inhabiting the South Exclosure, a 452-ha black-tailed prairie dog (*Cynomys ludovicianus*) colony in the Conata Basin, South Dakota, USA, during 2007-2008. Our objectives included (1) evaluation of the predictive capabilities of a recently developed ferret RUF generated from observations of ferrets on an adjacent colony; and (2) development of new RSFs, while evaluating influences on resource selection (e.g., predators and resource connectivity) not yet investigated for *M. nigripes*. Our evaluation of the ferret RUF suggested usefulness of the model in predicting ferret space use; that is, the model could be used to predict ferret occurrence and evaluate fine-scale habitat suitability. Our new RSFs demonstrated that ferrets, in both years, selected areas of increased abundance of active prairie dog burrows. Ferrets selected areas of increased distance from colony edges in 2007; however, a main-effects interaction suggested that if active burrow density is high in an edge area, ferrets still might select the area. Spatial avoidance of coyotes (*Canis latrans*) and badgers (*Taxidea taxus*), or similarities in space use among ferrets and these predators were not evident in our final RSFs. Connectivities of active and open burrow patches also were not retained in our RSFs. Conservation and restoration of colonies with high active burrow and prairie dog density are needed for continued recovery of ferrets. The ferret RUF, and our RSFs, if validated via independent data, could complement habitat evaluations and thus facilitate (1) reintroductions of ferrets to black-tailed prairie dog colonies and (2) the ferret recovery program.