



# Swift fox response to prescribe fire in shortgrass steppe

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## INTRODUCTION

Swift fox (*Vulpes velox*) are now found in only about 25% of their estimate pre-settlement range due to habitat changes. As land has been converging to crops, fire has been suppressed, coyotes have been controlled and tree and shrub cover in rangelands has increased. Thus, swift fox populations have severely declined in number and have become cut off from one another. Returning fire to the landscape may improve habitat for swift foxes.

## LOCATION

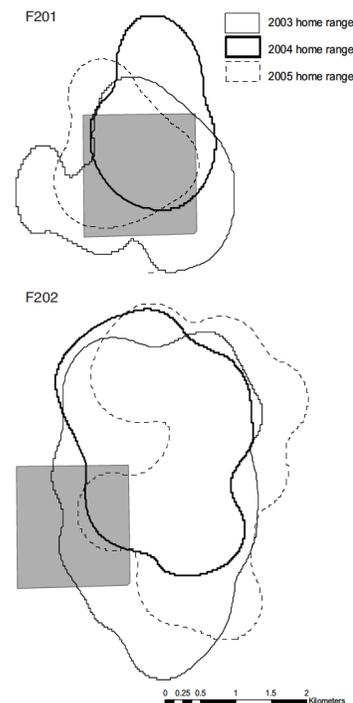
Swift fox home ranges on a buffalo/blue grama shortgrass prairie in southeast Colorado were tracked for two years following a 640 acre March prescribed burn. Foxes were fitted with telemetry that recorded fox location at least three times per week to determine how much time was spent both inside and outside the burned area. This data, including den location, was compared to where foxes spent their time before the fire.

## RESULTS

Before the fire, swift foxes home ranges were about 1600 acres, of which about 320 acres were used the most (core area). After the fire, home ranges were about 1250 acres, of which 220 acres were core area. Foxes whose home range and core area overlapped the area that was burned, denned in the burn area all the time, rather than an average of 70% of the time prior to the burn. Foxes spent an average of 14% more time hunting inside the burned area than on the same site before the fire, but a small sample size made it difficult to draw conclusions.

### Original publication:

Thompson, C.M., D.J. Augustine, and D.M. Mayers. 2008. Swift fox response to prescribed fire in shortgrass steppe. *Western North American Naturalist* 68(2):251-256.



**Figure 1.** March through July home ranges for 2 swift foxes. The shaded area indicates a prescribed burn area conducted in March, 2005.

## MANAGEMENT IMPLICATIONS

Tall vegetation makes coyote predation on swift foxes more likely. Burned areas create open habitat that may allow foxes to more easily see and escape predation. Foxes did not change their home ranges to include the burned area, but when home ranges overlapped the burned area, foxes spent more of their time there. Scattered shrubs on this prairie were not killed by the fire, so predation may not have been altered as much as if there were no shrubs. More intense fires than the patchy burn in this study may be needed to control shrubs, but any fire probably reduces coyote predation risk. Prescribed burning is likely an effective tool for maintaining swift fox populations.