

## MONTANA SWIFT FOX MANAGEMENT ACTIVITIES

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### ABSTRACT

Swift fox (*Vulpes velox*) management activities in 1999 consisted of Fish, Wildlife and Parks (FWP) funding and completing the initial phase of a statewide survey that will determine current species distribution in Montana. The Canadian Swift Fox Recovery Team continued to move forward with planning the international swift fox census for the winter of 2000-2001. FWP and the U.S. Bureau of Land Management (BLM) are developing a cost-share proposal to fund the Montana portion of this census in northcentral Montana, which is adjacent to the Canadian swift fox population. FWP sponsored the second annual Montana Swift Fox Working Group meeting on the Blackfeet Reservation at the captive swift fox reintroduction site. The Blackfeet Fish & Wildlife cooperated with private organizations to release 15 animals in 1999, with FWP providing radio collars to monitor several of the foxes. Conservation and management activities underway or in development, which relate to Montana's commitment to the national Swift Fox Conservation Team (SFCT) conservation strategy objectives (Kahn et al. 1997) are discussed.

### INTRODUCTION

FWP continues to address the swift fox conservation strategy objectives as outlined in the Conservation Assessment and Conservation Strategy of Swift Fox in the United States (CACs) (Kahn et al. 1997). To date, Montana has completed swift fox habitat surveys in the central and eastern portions of the state (Obj. 5) (Giddings and Knowles 1995), completed swift fox research to determine status and delineate species distribution (Obj. 2) (Zimmerman and Giddings 1997), and investigated swift fox biology and ecology (Obj. 10) (Zimmerman 1998). Montana remains an active member of the SFCT (Obj. 1) and FWP leads the state swift fox working group (Obj. 1) which will provide an avenue to accomplish Objectives 3, 5, and 8 by 1999-2000.

### METHODS

A statewide swift fox distribution survey was initiated during 1999. Survey design generally followed the sampling technique developed and reported by Roy et al. (1998) in Kansas. This survey method appeared to be efficient and cost-effective at a broad landscape level. A systematic sampling of alternate townships in a checkerboard pattern were selected in the northern half of seven northcentral Montana counties. The survey was conducted by private wildlife contractors between mid-August through October when detection of swift fox is assumed to be at its highest during pup dispersal and prior to the big game hunting season. Experienced observers delineated swift fox habitat (prairie grasslands) within each sampled township and would search it for evidence of occurrence (tracks, den sites, scat, foxes) by swift fox. Other species occurrences were recorded for state furbearers such as bobcat (*Lynx rufus*), predators such as coyote (*Canis latrans*) and skunk (*Mustela mephitis*), and nongame species such as badger (*Taxidea taxus*), raccoon (*Procyon lotor*), and red fox (*Vulpes vulpes*). Occurrences of prey species such as cottontail rabbits (*Sylvilagus spp.*) and whitetailed

jackrabbits (*Lepus townsendii*) were also recorded. Survey protocol dictated that each township is searched for a minimum of 30 minutes, unless no detection occurs, whereas searches would continue until swift fox are detected or for a maximum time period of 120 minutes. Searches occurred on accessible public land (federal and state lands) or along publicly accessible secondary roads and trails adjacent to private lands. Search emphasis was in or along prairie grassland habitats where bare soil was available, such as cattle trails, water tanks, fence corners, and prairie dog towns. Observers would move around to different areas in a township to search for sign within the allocated time period. Surveys were conducted 12 hours after rainfall and when wind speed was less than 15-20 mph.

FWP and the BLM initiated the development of a cost-share proposal to fund the Montana portion of the international swift fox census with Canada. The Canadian Swift Fox Recovery Team continued to move forward with the planning and funding stages of the census, which is scheduled to be conducted during the winter of 2000-2001 (A. Moehrenschlager, pers. comm.).

Participants of the Montana Swift Fox Working Group met for a day in August 1999 at the Blackfeet Tribal ranch reintroduction site. The group discussed and observed the reintroduction effort and reviewed the release protocol. The purpose of the meeting was to begin delineating prairie grassland habitat blocks, corridors, and corresponding land ownership patterns in the state. A current swift fox distribution map will be available through FWP upon completion of a statewide species occurrence database. Land ownership and cover type layers will be mapped with swift fox distribution to provide a focus for initial conservation activities by state and federal agencies.

The Blackfeet Nation tribal ranch received swift fox for their ongoing reintroduction effort in August 1999, in cooperation with Defenders of Wildlife and the Cochrane Ecological Institute, a captive-breeding facility in Canada. FWP's state furbearer program purchased new and refurbished radio collars for the monitoring of several released foxes. This will assist in evaluating the reintroduction program.

## **RESULTS**

One hundred and fifty two alternate townships were surveyed for swift fox sign in northern Glacier, Toole, Liberty, Hill, Blaine, Phillips, and Valley counties during 1999. Contractors were paid \$50/township for a total cost of \$7,600. Survey results indicating townships where swift fox sign was detected are illustrated in Figure 1. Of the 20 townships that produced swift fox sign, tracks were the primary means of detecting swift fox during the survey. Scat and den sites were also used as evidence of swift fox presence in several townships. No swift fox were observed during the survey period.

FWP coordinated planning efforts with the Canadian Swift Fox Recovery Team toward the 2000-2001 census effort. Information was provided to FWP to clarify timetables, methodology, field operations, and define funding needs. FWP initiated coordination activities with the BLM to develop a cost-share proposal to fund the Montana portion of the international census.

The Montana Swift Fox Working Group meeting provided an opportunity to review species status information and focus on identifying swift fox habitats in the state. A need was identified for FWP to create a species occurrence database, which was later accomplished using a Microsoft Access edit/entry program (L. Bailey, pers. comm.). Historic and current statewide swift fox distribution maps were generated from this data (Figs. 2 and 3). A cover type layer and land ownership layer will be added to the distribution map for state working group members for distribution to state, federal, and tribal wildlife/land managers next year. This information along with state working group conservation efforts will be provided to the national SFCT, in addition to the Canadian Swift Fox Recovery Team to assist in designing the international census.

Fifteen captive-raised swift fox from the Cochrane Ecological Institute were released in August, 1999 onto the Blackfeet tribal ranch. This second year of the reintroduction effort was again funded by Defenders of Wildlife. An overview of the release site and release protocol is provided in Giddings (1998). FWP provided eight radio collars for this release and attached six of the collars at the Cochrane Ecological Institute several weeks prior to release. The remaining two collars were attached to individual foxes at a later time during the release period by Cochrane Ecological Institute staff.

## **DISCUSSION**

FWP considers the determination of present swift fox distribution in Montana as a significant step toward the state and national efforts with regards to population monitoring activities and specific conservation measures. During the first year of a three-year statewide survey effort, FWP utilized the Kansas survey design because it was anticipated that this survey could become a standardized swift fox detection method that would be recommended by the SFCT. This technique was applied and evaluated in Montana during 1999.

This survey method appeared to be an efficient and cost-effective approach to define species distribution at a landscape level, although it was apparently not as effective in detecting overall species presence in Montana as has been reported in Kansas. Montana results indicate the survey did replicate known species distribution, although it did not "fill in" this distribution as well as expected. The survey detected swift fox sign in 13% of the townships surveyed, rather than the expected results of closer to 25% of the townships. However, survey results did detect an apparent westward range expansion of swift fox in to western Hill and Toole counties and was sensitive enough to detect the presence of a small reintroduced swift fox population on the Blackfeet Reservation in Glacier county. Determining current species distribution in the state will provide the baseline data needed to measure population expansion or contraction during monitoring activities in the future.

A field evaluation of this survey technique indicates species detection is dependent upon locating swift fox tracks. This was a relatively difficult task on the hard pan soil substrates present in northcentral Montana, as opposed to the moist sandy/loam soil types in Kansas. Soils in much of eastern Montana are composed primarily of clay or glaciated gravel. Survey coverage was also limited to some extent due to time constraint that precluded attempts to access private lands to conduct search efforts. Overall however, survey efficiency, cost-effectiveness, and detection

rates probably justify continuing the use of this survey method into additional areas of eastern Montana.

The Canadian Swift Fox Recovery Team has expressed an interest in determining a population estimate for the biological swift fox population that straddles the international border. This population was a direct result of the Canadian swift fox reintroduction program that begun in the mid-1980s. This population occupies Alberta, Saskatchewan, and Montana. Extending the census in to northcentral Montana is an effort to evaluate the overall success of the reintroduction program by combining population estimates for the adjacent Canada/U.S. populations. This is anticipated to provide a higher population figure, which may be closer to the size of the Canadian post-reintroduction goal of a self-sustaining population. The Canadian swift fox recovery team will also be looking at genetics, population structure, disease, and population viability. FWP expects to participate, depending on cost-share funding with the BLM. Field activities could occur during the winter period of 1999-2000.

Members of the state's swift fox working group are interested in accomplishing the SFCT conservation strategy objectives outlined in Kahn et al. (1997) for Montana (Appendix A). Activities have already been initiated to achieve these long-term objectives. FWP will provide maps to working group members, which delineate swift fox distribution in relation to land ownership patterns and vegetative cover types. It is anticipated that working group activities and mapping efforts will initially lead to conservation planning on the part of federal land management agencies. The working group will help coordinate future activities directed at habitat protection and maintaining habitat connectivity.

The Blackfeet release site is located in suitable swift fox habitat where foxes have access to additional tracts of extensive prairie grasslands. A resident wild swift fox population exists less than 90 miles from the reintroduction area. During the second year of this four-year program, there is good evidence of survival and early population establishment. Of the eight (out of 15) monitored foxes, two mortalities occurred soon after release. However, out of the six remaining collars, five were located during the following summer. Natal den sites have been located from several of the collared foxes, all with pups present. The 1999 post-release survey detected additional foxes within and outside the immediate release area. Family groups were also reported observed prior to the 1999 release.

All captive-raised foxes are expected to be monitored by radio collars from the 2000 release (M. Johnson, pers. comm.). This effort will aid in evaluating the reintroduction program by documenting mortality, survival, dispersal distance, residency, natal den sites locations, and reproductive or recruitment success. Fortunately, changes are taking place as the reintroduction progresses to provide a more scientifically based evaluation. This private program has the potential to help promote species restoration in Montana and the northern range of the swift fox.

Status of swift fox conservation strategy action items scheduled for completion in 1999:

**2.2.1** Completed. Utilizing the Kansas (Roy et al. 1998) alternate township sign survey detection method.

**2.1.2** Completed. Coordinate compilation of state species occurrence reports. State occurrence database established. Conducted first year of an anticipated three-year statewide swift fox distribution survey.

**2.1.3** Not completed. Montana swift fox harvest season remains closed.

**4.1.1** Completed. Utilized SFCT habitat literature review (Hoagland 1997) and state working group developing landscape level habitat criteria from GIS based vegetative cover types.

**5.1.2** Completed. Completed on statewide level and GIS map layer, ongoing field activities.

**5.1.3** Completed. Vegetative cover type layer available, mapped with species distribution.

**7.1.1** Not completed. Swift fox distribution and suitable habitat maps and data will be available and provided to state working group members and cooperators during 2000.

## **LITERATURE CITED**

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## APPENDIX A.