

DISTRIBUTION AND INVESTIGATIONS OF SWIFT FOX IN MONTANA

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ABSTRACT

The continued increase in frequency and intensity of swift fox occurrence reports between 1992-1996 indicate that a resident population occupies at least a portion of a four county area in northcentral Montana. A combination of these reports, which include multiple sightings and collected specimens, with data collected from a swift fox research project during 1996 have begun to provide sufficient information to delineate species distribution in northcentral Montana. Preliminary results of a research project to investigate several parameters of a resident swift fox population in the state are presented.

INTRODUCTION

Information on the status of swift fox (*Vulpes velox*) in Montana prior to 1978 is briefly discussed in Giddings and Knowles (1996). The species remains classified as a state furbearer, providing limited protection through a closed harvest season. Recent occurrence reports compiled since 1978 have provided 32 occurrence reports which represent a minimum of 53 single and multiple species observations, including six reports or 11 individual locations received from northcentral Montana in 1996.

Fish, Wildlife and Parks (FWP) and Montana State University (MSU) initiated swift fox research in 1996 in northcentral Montana to document a resident population and to investigate home range size, movements, and to identify natal den sites. Nine swift fox were captured or recaptured 18 times during 1,205 trap nights.

To address the swift fox conservation strategy objectives outlined in Kahn et al. (1996) FWP has conducted preliminary swift fox habitat surveys in central and eastern Montana (Giddings and Knowles 1996)(Objective 5)and initiated research in 1996 to assist in determining current species distribution in the state (Objective 2) and to investigate swift fox biology and ecology (Objective 10). Swift fox investigations in Montana are assisting Canada in understanding dispersal and species distribution resulting from their reintroduction effort (Moehrenschlager, pers. comm.).

METHODS

Swift fox observation reports were collected and compiled by FWP personnel and recorded on standard species occurrence/distribution report forms. Unsolicited reports and solicited information are received from private individuals (landowners, trappers, hunters) and government agency personnel (FWP, BLM, USFWS). Occurrence/ distribution reports contain

data on date, type of observation, site location, legal description, and county, with a remarks section to describe observation circumstances and identifying species characteristics.

Occurrence reports are categorized as confirmed (collected specimen, traded pelts, photographs, marked animals) or unconfirmed (visual observations, uncollected specimens). Occurrence records are compiled in a state species database and location data plotted on a state base map. An analysis of record frequency provides information on state species distribution.

Swift fox research was initiated in 1996 to investigate species distribution, home range size, movements and identification of natal den sites from a resident population in northcentral Montana. This two-year project is funded by FWP with graduate student support from MSU. Species occurrence reports were evaluated and landowner interviews were conducted to delineate a specific study area. Capture sessions involved systematic trapping of nine townships by placing live-traps in a modified grid pattern (depending on road access) of 1-2 traps at each corner of a four mile section block. This resulted in 16 trap sites per township. Tomahawk double door live-traps (No. 208, 42"x15"x15") were used to capture wild foxes and 50 gram radio collars with mortality sensors were provided from Advanced Telemetry Systems and Wildlife Materials. Determination of sex was by physical examination and age category by identifying morphological characteristics and/or tooth wear.

Capture sessions occurred between August 12 and November 15, 1996. Marked animals have been relocated by ground triangulation and aerial methods on an average of 10 days to two weeks. Limited species distribution surveys were conducted (track/scat searches) randomly in adjacent habitats.

RESULTS

Figure 1 indicates site specific occurrence locations and delineates the accumulation of reports in Montana for the 1978-1996 period. This includes six reports representing 11 individual locations in 1996 and nine live-trap capture location sites from the northcentral Montana swift fox research study. All occurrence reports and research locations compiled during 1996 were located in either Hill, Blaine, Phillips, or Valley counties in the northcentral portion of the state. Reports from these counties appear to be consistent, with an increasing incidence of confirmed reports. Six locations compiled during 1996 represent marked animals released in Canada and 14 locations are from undetermined or unmarked animals.

Live-trapping effort during the swift fox research project in a 324 mi² area resulted in the capture of nine previously unmarked individuals (6 males, 3 females) and nine recaptures over 1,205 trap nights. This is a capture rate of 1 fox/67 trap nights for the total number of captures (n=18) or 1 fox/134 trap nights for initial captures (n=9). Three males were considered to be adults and three were considered to be yearling animals while all three females were considered to be adults. Radio collared animals are relocated approximately three to four times a month. Over 90 relocations have been received from the nine individual swift fox during 1996.

The current known estimated species distribution in Montana is presented in Figure 1. Swift fox distribution is based on occurrence reports and live-capture site locations compiled from 1985 to

1996 and locational data from dispersing Canadian animals reported through 1991 (Brechtel et al. 1993).

Funding for swift fox management and research activities is from trapper license sales and federal aid to fish and wildlife management (Pittman-Robertson). The estimated cost of swift fox management and research activities in Montana during 1996 was \$30,000.

DISCUSSION

The series of swift fox reports since 1978 indicate that dispersing swift fox from the Canadian reintroduction areas and adjacent states (Wyoming) have recolonized portions of Montana. Brechtel et al.(1993) reported that seven townships in northcentral Montana provided relocations of Canadian released swift fox by either radio telemetry, recovered carcasses, or confirmed reports between 1987 and 1991. Additional records of swift fox released in Alberta or Saskatchewan that have been relocated or recovered in northcentral Montana are available but have yet to be compiled for the 1992-1996 period.

Although it is evident that some of the recent swift fox occurrence reports represent dispersing animals from established populations adjacent to Montana, swift fox investigations during 1996 provide new evidence that a resident population does exist in northcentral Montana. Frequency, intensity and persistence of species occurrence reports (13 years), the specimen collection and live-capture of unmarked and yearling animals, and locations of individual swift fox home ranges in northcentral Montana account for this evidence. Current known species distribution in Montana is apparently within the shortgrass prairie habitat available in the northcentral portion of the state.

The general areas of swift fox occurrence report locations since 1978, particularly from the 1992-1995 period, will serve as a starting point to initiate systematic surveys (presence/absence) to determine the extent of resident swift fox populations in Montana and to delineate statewide species distribution to meet Objective 2 outlined in Kahn et al. (1996).

The swift fox research effort initiated in 1996 will begin to address biological information needs from the northern portion of the species range, provide initial population density estimates, document the use of natal dens by resident foxes, and assist in delineating species distribution.

Priorities for 1997 are to address Objective 1 (state working group) and 2 (delineate state distribution) as outlined in the SFCACS. FWP management and research activities in 1997 will include completing the current swift fox research project, calculating initial density estimates for northcentral Montana, further define species distribution, compile relocation reports from Canadian marked animals located in Montana, and continue to collect swift fox occurrence reports. Anticipated expenditures for management and research activities during the 1997 calendar year will be approximately \$30,000 for personnel and operations.

LITERATURE CITED

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