Species Name	ALP	BP	PC	SDP
Grasshopper Sparrow *Ammodramus savannarum*	X	X	X	X
Fox Sparrow *Passerella iliaca*	X			
Song Sparrow *Melospiza melodia*	X	X	X	X
Lincoln's Sparrow *Melospiza lincolnii*	X			
Swamp Sparrow *Melospiza georgiana*	X	X	X	X
White-throated Sparrow *Zonotrichia albicollis*	X	X	X	X
Harris' Sparrow *Zonotrichia querula*	X	X	X	X
Bobolink *Dolichonyx oryzivorus*	X	X	X	X
Red-winged Blackbird *Agelaius phoeniceus*	X	X	X	X
Eastern Meadowlark *Sturnella magna*	X	X	X	X
Western Meadowlark *Sturnella neglecta*	X	X	X	X
Yellow-headed Blackbird *Xanthocephalus xanthocephalus*	X			X
Rusty Blackbird *Euphagus carolinus*		X	X	X
Brewer's Blackbird *Euphagus cyanocephalus*	X	X	X	X
Common Grackle *Quiscalus quiscula*	X	X	X	
Brown-headed Cowbird *Molothrus ater*	X	X	X	X
Baltimore Oriole *Icterus galbula*	X	X	X	X
American Goldfinch *Carduelis tristis*		X	X	
Pine Siskin *Carduelis pinus*			X	
House Sparrow *Passer domesticus*				

Unusual Migration by a White-Tailed Deer Fawn in South Dakota

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ABSTRACT -- We documented a 27.4 km migration by a five-day-old white-tailed deer (*Odocoileus virginianus dacotensis*) fawn in the central Black Hills of South Dakota. The migration of the fawn and its radiocollared mother began 11 June 1996 on winter range and ended one day later on summer range. Based on the available migration information for this species, we suggest this is the longest documented migration by a fawn of this age.

Key words: Black Hills, fawn, migration, *Odocoileus virginianus dacotensis*, South Dakota, white-tailed deer.

Migration between winter and summer ranges by white-tailed deer (*Odocoileus virginianus*) is most pronounced in northern mountainous areas that are marked by dramatic, seasonal climatic shifts (Siglin 1965). Nelson (1994) suggested that memory of migration is a learned behavior with distance and direction of movement consistent from one generation to the next. Furthermore, distance and pattern of movement by fawns are largely maternally controlled (Ozoga and Verme 1986). Hawkins and Klimstra (1970) suggested that movements of adult does were significantly reduced during birth and rearing. Riley and Dood (1984) calculated that 77% of radiocollared mule deer (*O. hemionus*) fawns in their study made movements greater than 1 km prior to one month of age and concluded that fawns were capable of extensive movements at any age. We were unable to find documentation of long term movements by white-tailed deer fawns. However, many studies have documented short term movements by white-tailed deer fawns (Progulske and Baskett 1958, Michael 1965, Jackson et al. 1972). Our purpose was to report an unusual migration pattern by an adult female white-

tailed deer and her five-day-old fawn.

The Black Hills, ranging in elevation from 973 to 2,202 m above mean sea level (Orr 1959, Turner 1974), is an isolated mountainous area in the northern Great Plains. The Black Hills extend approximately 190 km north to south and 95 km east to west (Petersen, 1984). Our observation occurred in the central Black Hills (43° 52' N to 44° 15' N and 104° 07' W to 103° 22' W), which includes Pennington and Lawrence counties of South Dakota and Crook and Weston counties of Wyoming (Fig. 1) and is composed of winter and summer ranges used by migratory white-tailed deer (Richardson and Petersen, 1974).

As part of a larger study to document white-tailed deer habitat selection and migration patterns, white-tailed deer were captured in February and March 1993 - 1995 by using modified, single-gate Clover traps (Clover 1956). White-tailed deer were captured on four winter ranges located northeast, northwest, and west of Hill City, South Dakota (Griffin et al. 1995). A sample of female (n = 73) and male (n = 12) white-tailed deer were fitted with radiocollars (Telonics Inc., Mesa, Arizona, Lotek Engineering, Inc. Ontario, Canada), ear-tagged, aged based on incisor wear, and released. Each radiocollared white-tailed deer was visually located from the ground one to three times per week.

In the central Black Hills, typical autumn migration for white-tailed deer is in a southeast direction from high elevation summer ranges to low elevation winter ranges and generally occurs between August and February. Typical spring migration occurs in a northwest direction from low elevation winter ranges to high elevation summer ranges. Peak spring migration for females generally occurs between 17 and 23 May. This is about three weeks prior to the peak date of parturition, which occurs approximately 11 June (T. A. Benzon, South Dakota Game, Fish & Parks, pers. comm.). In the central Black Hills, fawns are usually born on summer range and generally accompany their mothers during their first migration from summer to winter range.

An adult female white-tailed deer, i.e., doe 1193, estimated to be 2.5 years old was trapped on 11 March 1994 and radiocollared. In the spring of 1994, 43 radiocollared white-tailed deer migrated from winter to summer range. However, doe 1193 did not migrate but spent the summer near the Hill City trapping area and was thought to be a nonmigratory resident white-tailed deer. In the fall of 1994, most (74%) of the radiocollared white-tailed deer began migrating back to winter ranges. On 1 November 1994, 1193 migrated 27.4 km (17 miles) to an area southwest of Rapid City, South Dakota. This area was later determined to be her winter range (Fig. 1). She wintered on this area until 31 May 1995, at which time she migrated to her summer range near Hill City (Fig. 1). After arriving on summer range, she was observed with two fawns that survived the summer/fall period and accompanied her to winter range on 19 October 1995; she remained there until June 1996.

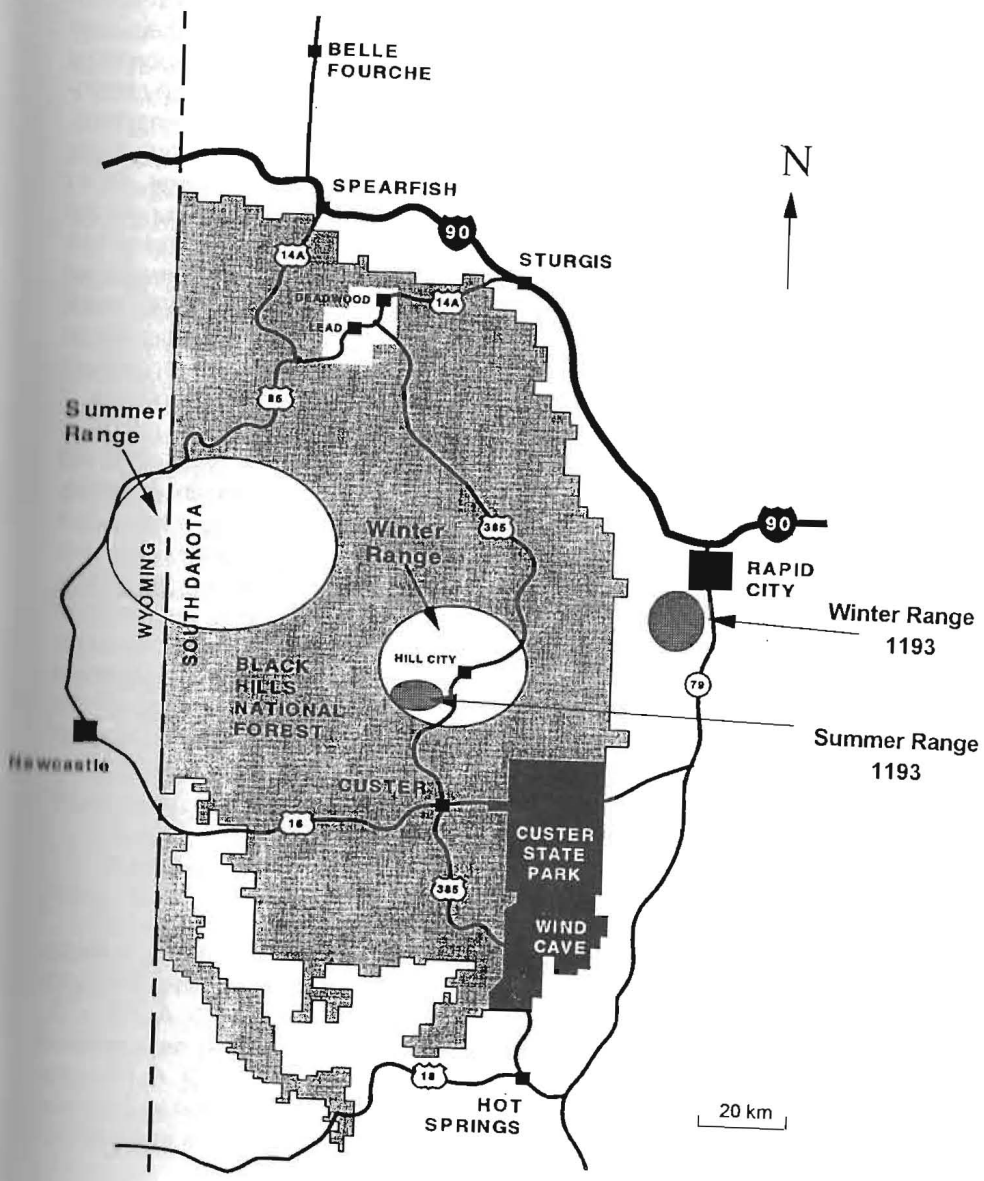

Figure 1. – Location of winter and summer ranges of radiocollared white-tailed deer in the central Black Hills, South Dakota, 1993 - 1996.

On 6 June 1996, at 1330 hours, 1193 was observed shortly after giving birth to two fawns; the fawns still covered in mucus were inspected in a non-invasive manner and determined to be males. On 7 June, the fawns had been moved less than 200 meters from the fawning area and 1193 was observed near the fawning site. For the next four days she was monitored by radio-signal from a nearby road to minimize disturbance to her and the fawns; thus, no observations were obtained. Because she had fawned on her winter range, we expected that she would remain there with her fawns. However, on 11 June, doe 1193 initiated migration toward summer range. We assumed the fawns had died and that she had migrated to her traditional summer range. Because she was traveling we were unable to visually locate her, however we did monitor her by radio-signal as she migrated. On 12 June at 1500 hours, after she had migrated a minimum of 27.4 km (17 miles), 1193 was located on her summer range where she remained for the duration of summer. On 16 June, doe 1193 was observed with a fawn of the expected size and age of those seen on winter range.

Thereafter, 1193 was monitored on a bi-weekly basis and was observed with other white-tailed deer. The fawn was last observed on 16 June. Marchinton and Hirth (1984) stated that female white-tailed deer rarely adopt fawns and that most orphaned fawns are not adopted by other females. For this reason, we concluded that the fawn observed was one of doe 1193's young from winter range. We were unable to find information in the literature indicating that a migration of 27.4 km by a five-day-old fawn was common in white-tailed deer. Of 73 radiocollared adult female white-tailed deer observed throughout our study, 1193 was the only individual that migrated in this manner. Hence, 1193's behavior soon after fawning was considered unusual relative to the typical migration pattern of other adult female white-tailed deer in the central Black Hills.

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