Summary of Field Studies

To determine whether mule deer movements from areas of high CWD prevalence are related to levels of CWD prevalence in surrounding areas and/or mule deer populations, we captured and radiocollared mule deer in 2 areas of high CWD prevalence. On 9 December 1999 and 10 December 1999, 42 deer were captured in game management unit (GMU) 9 near Virginia Dale, and from 7 January 2000 to 29 February 2000, 22 deer were captured in GMU20 near Masonville (Table 1). Dispersal and/or migration movements could be related to the spread of CWD. Mule deer typically disperse between 12 and 30 months of age. In order to record both dispersal and migration movements, we focused our capture efforts on fawns and yearlings (6-30 months of age). Thus, 86% of the deer captured in GMU9 and GMU20 were fawns and yearlings.

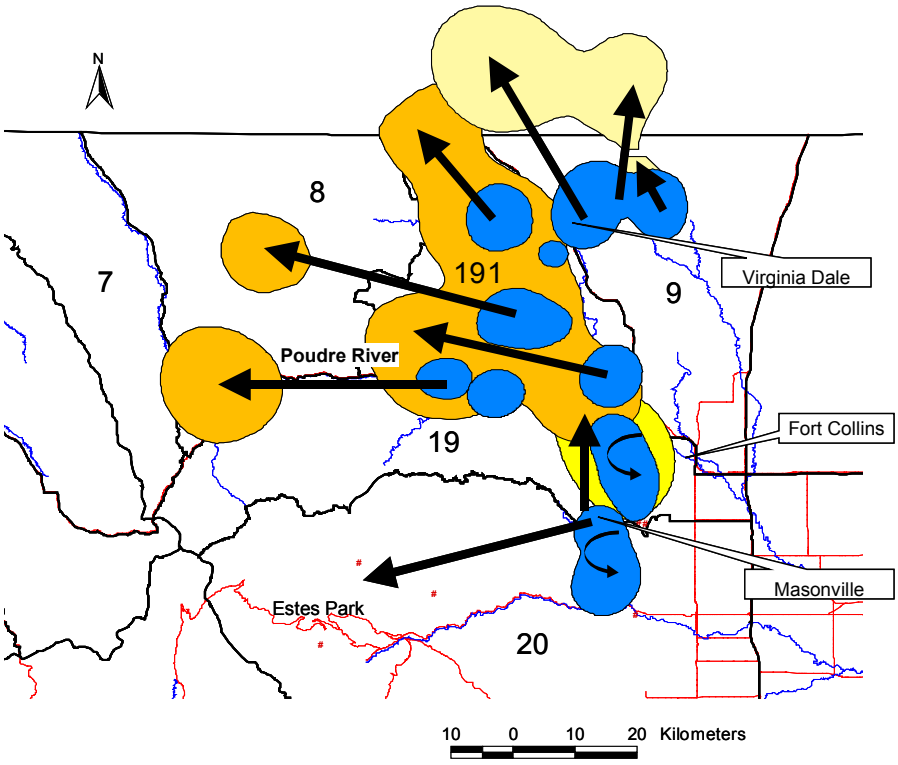
Table 1. Number of mule deer radiocollared during winter 1999-2000 in GMU9 and GMU20 by sex and age.

Area	Sex	Age	Number Radiocollared
GMU 9	Male	Fawn	14
		Yearling	4
		Adult	2
	Female	Fawn	18
		Yearling	0
		Adult	4
		Total	42
GMU 20	Male	Fawn	6
		Yearling	4
		Adult	1
	Female	Fawn	6
		Yearling	3
		Adult	2
		Total	22

This year served as a pilot study in which movements of mule deer were described. We collected location data on deer radiocollared from this study, as well as from deer radiocollared for an ongoing survival study in DAU4. Telemetered mule deer were located every 6-8 weeks. From preliminary data, we developed graphical information system maps that include locations of summer and winter range and migration movements in areas of high CWD prevalence, such as GMU 9 and GMU20, and areas of lower prevalence, such as GMU191 and GMU19 (Figure 1). Movements of deer showed a relationship to prevalence patterns. Deer in GMU9, with high levels of CWD prevalence, moved north into areas of

Wyoming with equally high prevalence. Deer in GMU191, located west and adjacent to GMU9, and having relatively lower levels of CWD prevalence, moved to the west into areas of low prevalence. There was no overlap in winter range for deer in GMU9 and deer in GMU191 and almost no overlap in summer range (<1%). Deer movements appear related to patterns of prevalence in DAU4; migration patterns of mule deer may explain spatial patterns of CWD prevalence in northcentral Colorado and southcentral Wyoming.

Figure 1. Summer and winter home range and movement patterns from winter to summer home range for mule deer radiocollared in GMUs 9, 191, 19, and 20.



As part of baseline data for deer in areas of high CWD prevalence, we calculated overwinter survival rates in accordance with protocols from an ongoing study of deer survival in data analysis unit (DAU) 4. Overwinter fawn and adult survival was estimated for 1 December to 15 June (Table 2). Survival was not different in GMU9, where CWD prevalence was high, compared to the other GMUs in DAU4 with lower prevalence (GMU191 and GMU19); that is, all confidence intervals almost fully overlapped. Survival estimates were only done by GMU because sample sizes were not large enough to accurately estimate age and sex specific survival.

Table 2. Kaplan-Meier survival estimates for mule deer wintering in GMU9, GMU19, GMU191, and GMU20.

Year	Survival Period	Wintering Area	Sample Size	Survival Estimate	95% CI	
1999-00	10 Dec-15 June	DAU4	137	0.823	0.748	0.899
		GMU9	45	0.764	0.630	0.900
		GMU19	20	0.612	0.378	0.843
		GMU191	52	0.940	0.874	1.000
		GMU20	20	0.850	0.690	1.000

Trap mortalities were excluded from calculations. Three deer radiocollared prior to 1999 were present in GMU9, thus the sample size was 45 rather than the 42 captured this year.