

## Appendix A.

Table A1. Summary statistics for the 23 Wyoming elk feedgrounds.

Name	# Elk	Feeding data <sup>1</sup>			Testing data <sup>2</sup>		Seroprevalence <sup>5</sup>	Model prediction <sup>6</sup>	Comingling <sup>7</sup>	Covariates <sup>3</sup>	
		Begin <sup>4</sup>	End <sup>4</sup>	Total Days	Testing Years	# Tested				Livestock <sup>8</sup>	Damage <sup>9</sup>
Alkali	629	67	161	95	1999, 2002	52	0.15	0.13	No	Yes	3
Bench Corral	348	42	140	95	2006	32	0.13	0.13	Yes	No	3
Black Butte	411	26	174	149	2000	32	0.06	0.06	Yes	No	4
Patrol Cabin <sup>10</sup>	586	71	158	88	2002, 2003	21	0.43		No	Yes	2
Camp Creek	843	51	170	119					No	No	3
Dell Creek	262	31	174	144	1998-2006	288	0.28	0.28	Yes	Yes	4
Dog Creek	622	48	166	119	1996-98	22	0.09	0.06	No	Yes	4
Fall Creek	651	28	165	137	1994-95	37	0.24	0.23	Yes	No	2
Finnegan	309	20	171	151	2001	33	0.18	0.18	Yes	Yes	4
Fish Creek	751	71	160	91					No	Yes	2
Forest Park	697	39	170	134	2001-02	75	0.29	0.29	No	No	1
Franz	390	30	174	145	2003, 2005	86	0.36	0.36	Yes	No	4
Green River	544	44	168	126	1993, 2003	34	0.12	0.11	No	No	1
Greys River (Alpine)	867	38	175	138	1993-2006	545	0.28	0.26	Yes	Yes	4
Horse Creek	941	55	171	116	2000	36	0.22	0.19	Yes	Yes	3
Jewett	514	23	175	152					Yes	No	4
McNeel	545	31	168	137	1997-98	2	0.00	0.00	No	Yes	4
Muddy Creek	580	24	172	149	96,97,00,04-06	308	0.32	0.32	Yes	Yes	4
Nat. Elk Refuge (NER)	7408	82	154	72	1993, 95-06	339	0.11	0.09			
North Piney	321	21	160	140					Yes	Yes	3
Scab Creek	440	23	174	150	2006	15	0.20	0.20	Yes	Yes	4
Soda Lake	661	45	162	119	2006	34	0.15	0.13	Yes	No	2
South Park	953	51	170	119	2005	44	0.25	0.25	Yes	Yes	4

1. Means based upon all available data from 1952 to 2006

2. Includes only those tests where cELISA results and age of the individual were known (2136 total tests).

3. Covariates were taken from Western Ecosystems Technology Inc. Report (2004) and used as predictors of feeding end date.

4. Start and end of the artificial feeding season, respectively (# of days since Nov. 1st)

5. Brucellosis status was assessed using the USDA Uniform Methods and Rules for cervids.

6. Predicted seroprevalence using the lowest AIC value generalized linear model (brucella ~ Age + End + Elk + Feedground).

7. Documented elk-cattle comingling.

8. Feedground on or near a livestock allotment.

9. Subjective score of the potential for elk damage to private property (converted to binary variable: highest vs. all other others)

10. Patrol Cabin samples were excluded from the analyses due to a lack of data on date and age of individuals sampled.

## Appendix B.

Table B1. Parameter estimates from the best AIC logistic regression model (brucella positive ~ Age + Begin + End + Elk + Feedground) using 2136 test results from 1993-2006.

Parameter	Estimate	SE	z value	p-value
Intercept	-37.86	4.878	-7.762	< 0.0001
Calf	-15.16	308.20	-0.049	0.961
Yearling	-1.022	0.156	-6.567	< 0.0001
Begin (previous 8 yrs)	0.017	0.012	1.404	0.160
End (previous 8 yrs)	0.218	0.032	6.906	< 0.0001
Elk (previous 8 yrs)	-0.001	0.0002	-2.457	0.014
Feedground_Bench	4.122	0.870	4.737	< 0.0001
Feedground_Black	-3.922	1.177	-3.332	0.001
Feedground_Dell	-1.910	0.811	-2.356	0.018
Feedground_Dog	1.026	0.883	1.162	0.245
Feedground_Fall	2.619	0.730	3.589	< 0.0001
Feedground_Finnegan	-0.831	0.997	-0.833	0.405
Feedground_Forest	-1.047	0.727	-1.441	0.149
Feedground_Franz	-1.670	0.981	-1.702	0.089
Feedground_Green	0.780	0.699	1.115	0.265
Feedground_Greys	-0.256	0.635	-0.403	0.687
Feedground_Horse	-0.671	0.643	-1.043	0.297
Feedground_McNeel	-15.70	653.70	-0.024	0.981
Feedground_Muddy	1.334	0.632	2.112	0.035
Feedground_NER	5.987	1.963	3.050	0.002
Feedground_Scab	0.251	0.917	0.273	0.785
Feedground_Soda	2.098	0.776	2.704	0.007
Feedground_South	0.386	0.610	0.632	0.527

## Appendix C.

Table C1. Parameter estimates from the general linear model of feeding season end date using all main effects ( $N = 902$ ;  $R^2 = 0.183$ ).

Parameter	Estimate	SE	t-value	p-value
Intercept	676.6	71.2	9.50	< 0.0001
April snow-water equivalent <sup>1</sup>	0.376	0.06	6.01	< 0.0001
Elk damage <sup>2</sup>	8.775	1.07	8.18	< 0.0001
Year <sup>3</sup>	-0.263	0.04	-7.38	< 0.0001
Elk population size	-0.001	0.0004	-2.51	0.012
Comingle <sup>2</sup>	1.181	1.10	1.07	0.286
Livestock <sup>2</sup>	-3.036	1.03	-2.95	0.003
Elevation	0.002	0.002	0.71	0.480

1 . Based upon the snowpack telemetry site nearest to each feedground.

2 . See Appendix A.

3 . Included as a linear trend over time.