

Figure S1. Model flow for each simulation. Each culling strategy (RANDOM, MAF, and MK) was run at three different time steps (100, 200, and 500 years). Simulations for each time step were repeated for 1000 iterations.

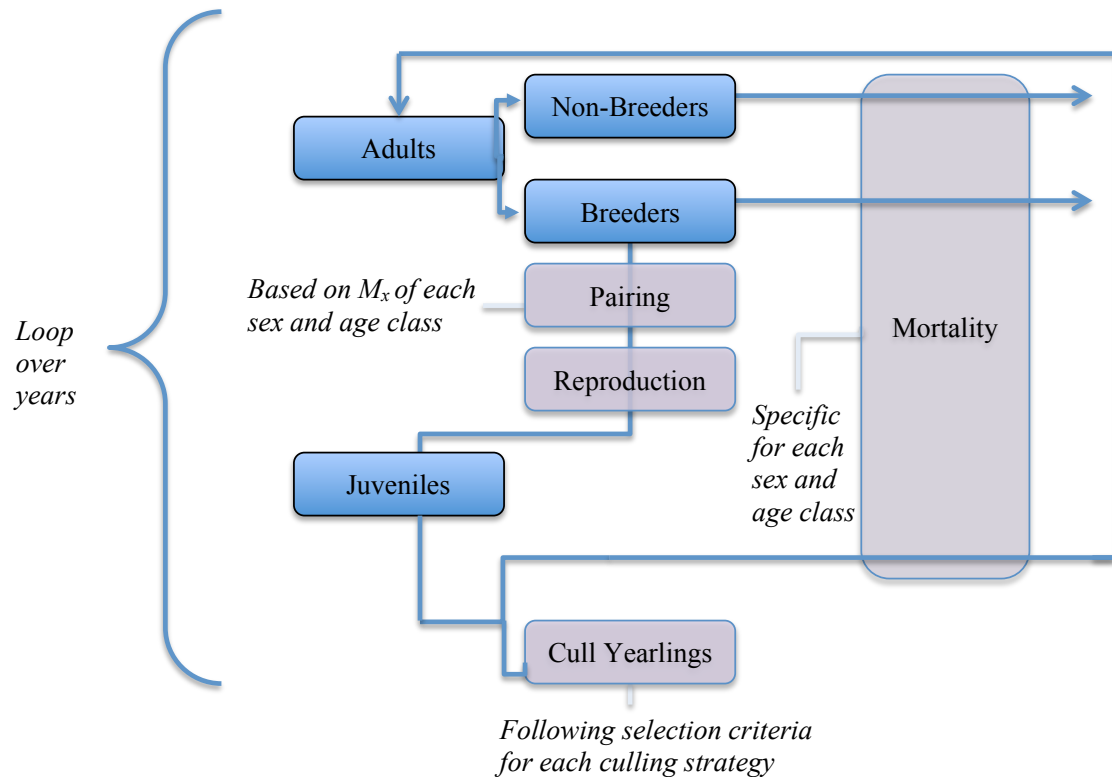


Figure S2. Mortality functions for males (solid red line) and females (dotted black line) were generated using known average adult mortality (0.05 for males; 0.03 for females), juvenile mortality (0.05), and age expectancy for the Fort Niobrara bison herd.

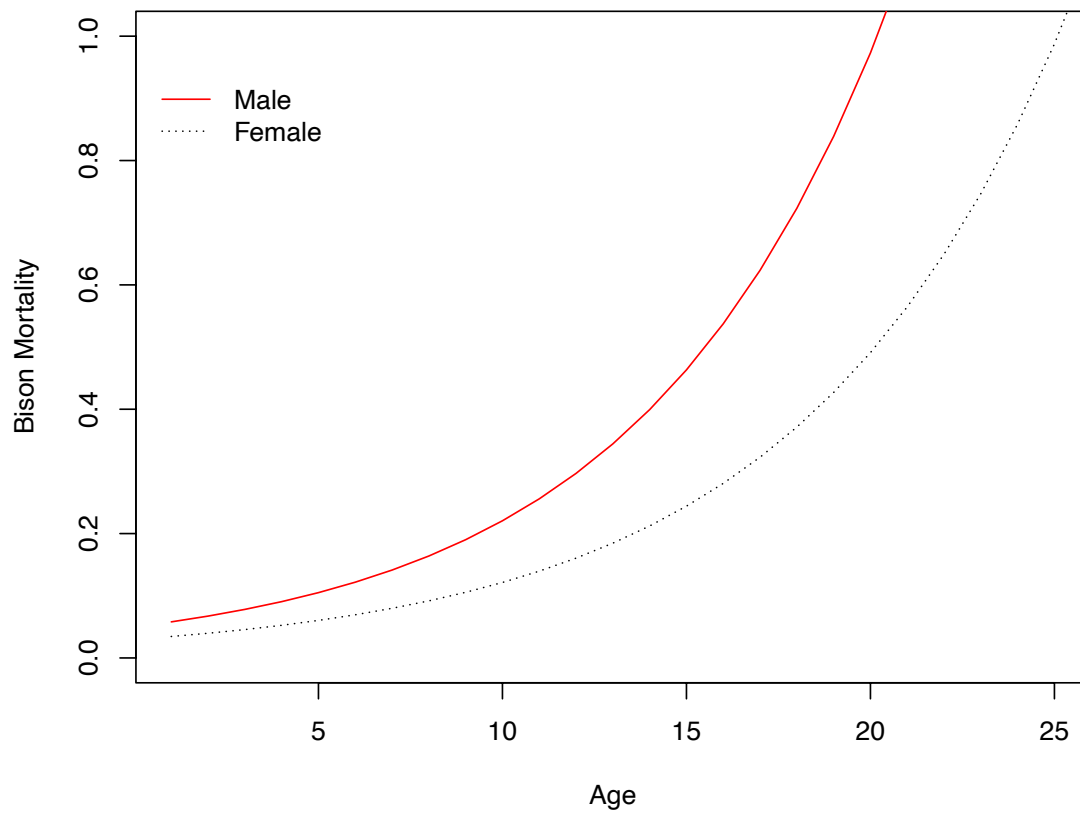


Table S1. Genetic variation measures averaged over 1000 iterations from the 500 year time step of the sensitivity analysis reflecting the genetic variation measures under each culling strategy with (a) different target population sizes (200, 500, and 1000), (b) with different proportions of the male population of breeding age able to breed (25%, 50%, 100%), and (c) and alternative levels of mortality (200%, 300%, and 400% of original). The CV of measures depicted in parentheses.

a

		Target Population Size								
		200			500			1000		
Measures of Genetic Variation	Founding Population	RANDOM	MAF	MK	RANDOM	MAF	MK	RANDOM	MAF	MK
Target <i>A</i>	4.418	1.951 (0.220)	2.622 (0.251)	2.151 (0.232)	2.762 (0.043)	3.928 (0.034)	3.123 (0.029)	3.371 (0.027)	4.119 (0.022)	3.633 (0.020)
Non-Target <i>A</i>	4.282	1.917 (0.220)	1.962 (0.245)	2.034 (0.231)	2.721 (0.040)	2.822 (0.054)	3.033 (0.028)	3.200 (0.034)	3.363 (0.038)	3.694 (0.032)
Target <i>H</i>	0.585	0.296 (0.122)	0.542 (0.102)	0.347 (0.112)	0.429 (0.060)	0.714 (0.024)	0.482 (0.038)	0.508 (0.035)	0.729 (0.013)	0.538 (0.025)
Non-Target <i>H</i>	0.584	0.288 (0.123)	0.305 (0.107)	0.320 (0.114)	0.426 (0.059)	0.441 (0.067)	0.481 (0.041)	0.481 (0.039)	0.508 (0.048)	0.550 (0.038)
<i>GD</i>	0.998	0.492 (0.081)	0.517 (0.070)	0.574 (0.082)	0.716 (0.024)	0.742 (0.013)	0.807 (0.004)	0.851 (0.009)	0.858 (0.006)	0.902 (0.003)
<i>F</i>	0.000	0.501 (0.076)	0.476 (0.072)	0.417 (0.107)	0.279 (0.062)	0.253 (0.038)	0.188 (0.017)	0.147 (0.054)	0.139 (0.038)	0.095 (0.028)

b

		Proportion of Breeding Males								
		0.25			0.50			1.00		
Measures of Genetic Variation	Founding Population	RANDOM	MAF	MK	RANDOM	MAF	MK	RANDOM	MAF	MK
Target <i>A</i>	4.418	2.539 (0.071)	3.346 (0.043)	2.751 (0.063)	2.849 (0.037)	3.930 (0.018)	3.123 (0.029)	3.114 (0.032)	4.056 (0.014)	3.396 (0.025)
Non-Target <i>A</i>	4.450	2.683 (0.073)	2.627 (0.059)	2.769 (0.063)	2.877 (0.037)	3.058 (0.034)	3.093 (0.028)	3.060 (0.030)	3.143 (0.041)	3.402 (0.037)
Target <i>H</i>	0.585	0.395 (0.085)	0.631 (0.038)	0.434 (0.060)	0.445 (0.052)	0.716 (0.012)	0.482 (0.038)	0.483 (0.042)	0.727 (0.009)	0.517 (0.032)
Non-Target <i>H</i>	0.603	0.416 (0.086)	0.410 (0.078)	0.437 (0.060)	0.448 (0.055)	0.489 (0.044)	0.481 (0.041)	0.480 (0.042)	0.487 (0.050)	0.516 (0.043)
<i>GD</i>	0.998	0.656 (0.058)	0.674 (0.041)	0.723 (0.025)	0.744 (0.016)	0.762 (0.011)	0.807 (0.004)	0.808 (0.010)	0.817 (0.007)	0.867 (0.003)
<i>F</i>	0.000	0.336 (0.115)	0.317 (0.089)	0.269 (0.068)	0.250 (0.047)	0.232 (0.034)	0.188 (0.017)	0.187 (0.044)	0.178 (0.033)	0.128 (0.018)

c

		Mortality								
		2.00			3.00			4.00		
Measures of Genetic Variation	Founding Population	RANDOM	MAF	MK	RANDOM	MAF	MK	RANDOM	MAF	MK
Target <i>A</i>	4.418	2.365 (0.042)	3.662 (0.082)	2.741 (0.054)	1.852 (0.457)	2.575 (0.479)	2.099 (0.435)	0.800 (1.163)	0.839 (1.313)	0.917 (1.077)
Non-Target <i>A</i>	4.255	2.310 (0.044)	2.432 (0.047)	2.675 (0.054)	1.769 (0.457)	1.822 (0.464)	1.993 (0.434)	0.798 (1.162)	0.730 (1.268)	0.992 (1.078)
Target <i>H</i>	0.585	0.364 (0.074)	0.681 (0.066)	0.432 (0.070)	0.337 (0.092)	0.597 (0.122)	0.386 (0.101)	0.256 (0.196)	0.354 (0.449)	0.273 (0.245)
Non-Target <i>H</i>	0.575	0.354 (0.075)	0.378 (0.076)	0.421 (0.068)	0.313 (0.096)	0.328 (0.101)	0.358 (0.103)	0.253 (0.192)	0.258 (0.214)	0.275 (0.256)
<i>GD</i>	0.998	0.607 (0.019)	0.650 (0.031)	0.721 (0.046)	0.563 (0.047)	0.590 (0.064)	0.644 (0.076)	0.421 (0.166)	0.425 (0.190)	0.451 (0.235)
<i>F</i>	0.000	0.388 (0.029)	0.343 (0.059)	0.274 (0.121)	0.432 (0.061)	0.404 (0.093)	0.351 (0.140)	0.573 (0.120)	0.569 (0.141)	0.543 (0.195)