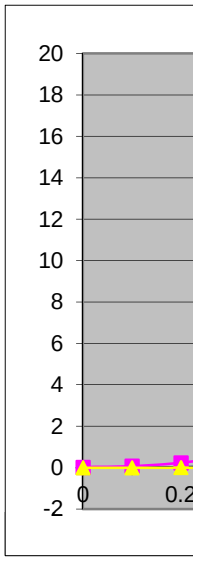
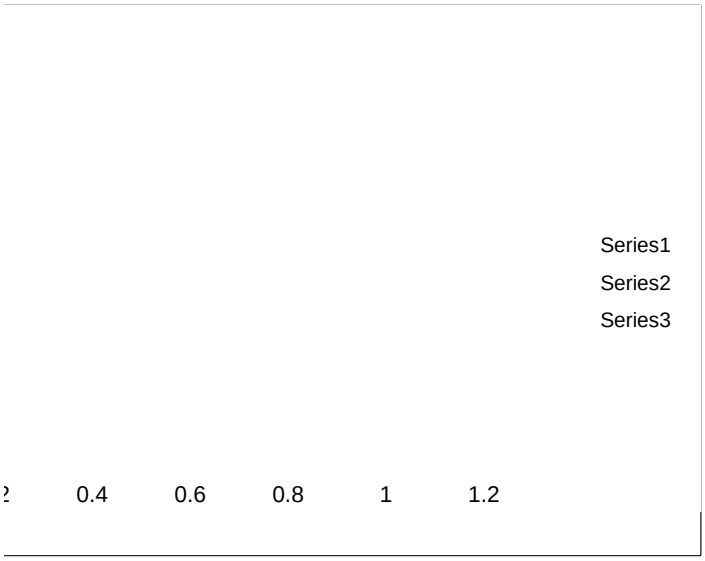
Pages 1 through 4 redacted for the following reasons:
- -
s.13, s.16

model	prior	likelihood DATA	prior*likelihood	posterior
0	1.407E-05	0.016874227	2.37421E-07	2.40682E-09
0.1	0.00067797	0.070566495	4.78419E-05	4.84991E-07
0.2	0.015832967	0.228954637	0.003625031	3.67483E-05
0.3	0.179205211	0.576337099	0.103282611	0.001047013
0.4	0.983049267	1.125589266	1.106509703	0.011217088
0.5	2.613582737	1.705530712	4.457545626	0.04518775
0.6	3.367701119	2.005004631	6.752256341	0.068450061
0.7	2.103134989	1.828720993	3.846047107	0.038988768
0.8	0.636556673	1.294064	0.823745074	0.008350601
0.9	0.093377732	0.710461085	0.066341245	0.000672525
1	0.006638743	0.302622398	0.002009032	2.03663E-05
SUMS	9.999771478	9.9	98.64500112	1



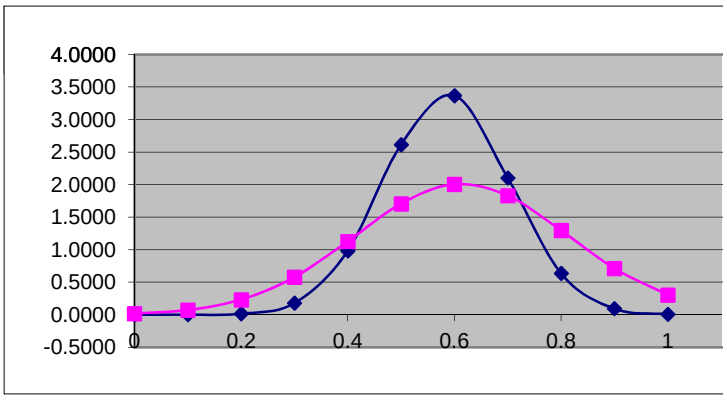
model	prior	likelihood	posterior	PDF
0	1.407E-05	0.016874227	0.00	0.000
0.1	0.00067797	0.070566495	0.00	0.000
0.2	0.015832967	0.228954637	0.00	0.000
0.3	0.179205211	0.576337099	0.10	0.006
0.4	0.983049267	1.125589266	1.12	0.064
0.5	2.613582737	1.705530712	4.52	0.260
0.6	3.367701119	2.005004631	6.85	0.393
0.7	2.103134989	1.828720993	3.90	0.224
0.8	0.636556673	1.294064	0.84	0.048
0.9	0.093377732	0.710461085	0.07	0.004
1	0.006638743	0.302622398	0.00	0.000
			17.40	1.00

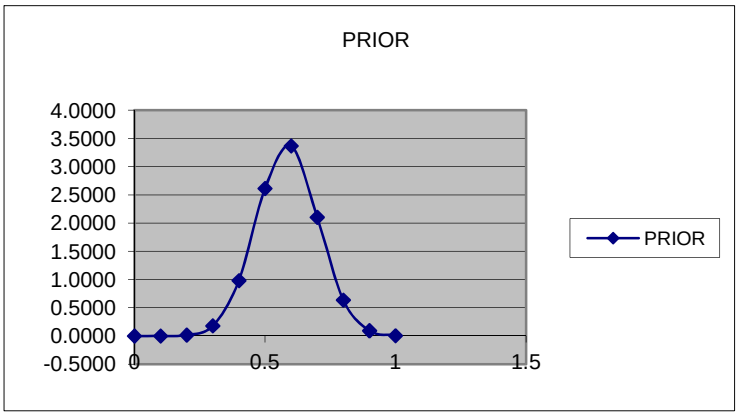

Series1
Series2
Series3
0.4
0.6
0.8
1
1.2

PRIOR INGENIKA RESULTS								
model	PRIOR	mean	var	se	90%CV	num	dem	exp
0	0.0000	0.585	0.013806	0.1175	0.330406	4E-06	0.294529	-12.39
0.1	0.0007	0.585	0.013806	0.1175	0.330406	2E-04	0.294529	-8.52
0.2	0.0158	0.585	0.013806	0.1175	0.330406	5E-03	0.294529	-5.37
0.3	0.1792	0.585	0.013806	0.1175	0.330406	5E-02	0.294529	-2.94
0.4	0.9830	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.24
0.5	2.6136	0.585	0.013806	0.1175	0.330406	8E-01	0.294529	-0.26
0.6	3.3677	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.01
0.7	2.1031	0.585	0.013806	0.1175	0.330406	6E-01	0.294529	-0.48
0.8	0.6366	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.67
0.9	0.0934	0.585	0.013806	0.1175	0.330406	3E-02	0.294529	-3.59
1	0.0066	0.585	0.013806	0.1175	0.330406	2E-03	0.294529	-6.24

2007 RESULTS								
model	DATA	mean	var	se	90%CV	num	dem	exp
0	0.0169	0.6137	0.039401	0.198497	0.53203	8E-03	0.497559	-4.78
0.1	0.0706	0.6137	0.039401	0.198497	0.53203	4E-02	0.497559	-3.35
0.2	0.2290	0.6137	0.039401	0.198497	0.53203	1E-01	0.497559	-2.17
0.3	0.5763	0.6137	0.039401	0.198497	0.53203	3E-01	0.497559	-1.25
0.4	1.1256	0.6137	0.039401	0.198497	0.53203	6E-01	0.497559	-0.58
0.5	1.7055	0.6137	0.039401	0.198497	0.53203	8E-01	0.497559	-0.16
0.6	2.0050	0.6137	0.039401	0.198497	0.53203	1E+00	0.497559	0.00
0.7	1.8287	0.6137	0.039401	0.198497	0.53203	9E-01	0.497559	-0.09
0.8	1.2941	0.6137	0.039401	0.198497	0.53203	6E-01	0.497559	-0.44
0.9	0.7105	0.6137	0.039401	0.198497	0.53203	4E-01	0.497559	-1.04
1	0.3026	0.6137	0.039401	0.198497	0.53203	2E-01	0.497559	-1.89

model	**PRIOR**	**DATA**
0	0.0000	0.0169
0.1	0.0007	0.0706
0.2	0.0158	0.2290
0.3	0.1792	0.5763
0.4	0.9830	1.1256
0.5	2.6136	1.7055
0.6	3.3677	2.0050
0.7	2.1031	1.8287
0.8	0.6366	1.2941
0.9	0.0934	0.7105
1	0.0066	0.3026




PRIOR
4.0000
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3.0000
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1.5000
1.0000
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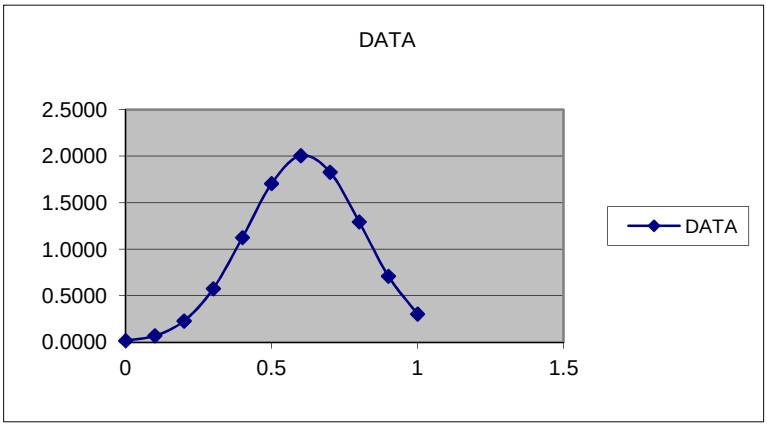
0.0000
-0.5000
0
0.5
1
1.5
PRIOR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1.0000
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0.0000
0
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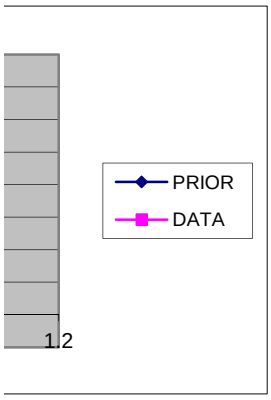
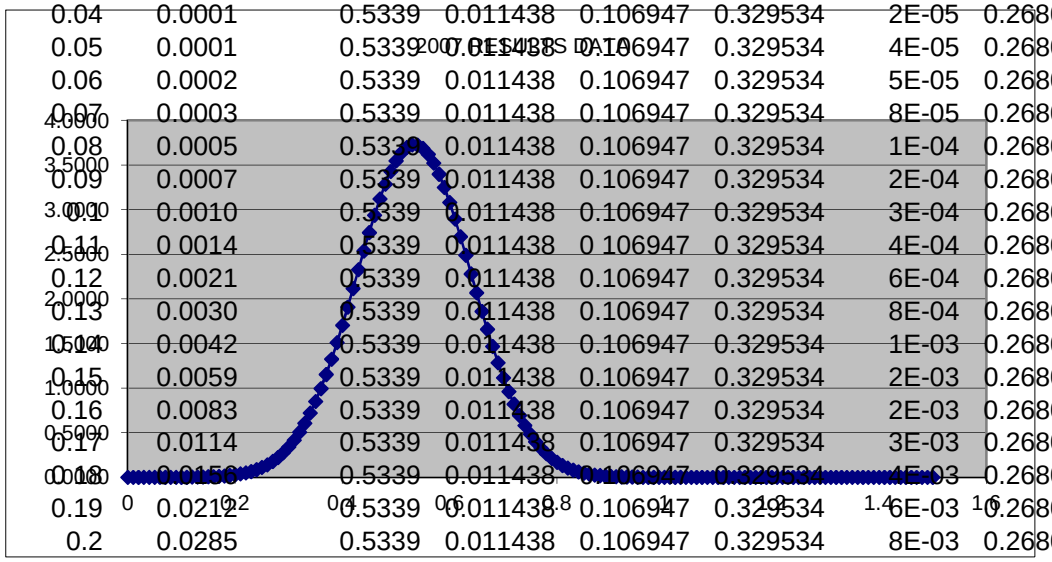
1
1.5
DATA


PRIOR
DATA
1.2

2007 RESULTS

model	DATA	mean density	var	se	90%CV	num	dem	exp
0	0.0000	**0.5339**	**0.011438**	0.106947	0.329534	4E-06	0.268075	-12.46
0.01	0.0000	0.5339	0.011438	0.106947	0.329534	6E-06	0.268075	-12.00
0.02	0.0000	0.5339	0.011438	0.106947	0.329534	1E-05	0.268075	-11.54
0.03	0.0001	0.5339	0.011438	0.106947	0.329534	2E-05	0.268075	-11.10
0.04	0.0001	0.5339	0.011438	0.106947	0.329534	2E-05	0.268075	-10.66
0.05	0.0001	0.5339	0.011438	0.106947	0.329534	4E-05	0.268075	-10.23
0.06	0.0002	0.5339	0.011438	0.106947	0.329534	5E-05	0.268075	-9.82
0.07	0.0003	0.5339	0.011438	0.106947	0.329534	8E-05	0.268075	-9.41
0.08	0.0005	0.5339	0.011438	0.106947	0.329534	1E-04	0.268075	-9.01
0.09	0.0007	0.5339	0.011438	0.106947	0.329534	2E-04	0.268075	-8.61
0.1	0.0010	0.5339	0.011438	0.106947	0.329534	3E-04	0.268075	-8.23
0.11	0.0014	0.5339	0.011438	0.106947	0.329534	4E-04	0.268075	-7.85
0.12	0.0021	0.5339	0.011438	0.106947	0.329534	6E-04	0.268075	-7.49
0.13	0.0030	0.5339	0.011438	0.106947	0.329534	8E-04	0.268075	-7.13
0.14	0.0042	0.5339	0.011438	0.106947	0.329534	1E-03	0.268075	-6.78
0.15	0.0059	0.5339	0.011438	0.106947	0.329534	2E-03	0.268075	-6.44
0.16	0.0083	0.5339	0.011438	0.106947	0.329534	2E-03	0.268075	-6.11
0.17	0.0114	0.5339	0.011438	0.106947	0.329534	3E-03	0.268075	-5.79
0.18	0.0150	0.5339	0.011438	0.106947	0.329534	4E-03	0.268075	-5.47
0.19	0.0212	0.5339	0.011438	0.106947	0.329534	6E-03	0.268075	-5.17
0.2	0.0285	0.5339	0.011438	0.106947	0.329534	8E-03	0.268075	-4.87
0.21	0.0381	0.5339	0.011438	0.106947	0.329534	1E-02	0.268075	-4.59
0.22	0.0503	0.5339	0.011438	0.106947	0.329534	1E-02	0.268075	-4.31
0.23	0.0659	0.5339	0.011438	0.106947	0.329534	2E-02	0.268075	-4.04
0.24	0.0855	0.5339	0.011438	0.106947	0.329534	2E-02	0.268075	-3.78
0.25	0.1101	0.5339	0.011438	0.106947	0.329534	3E-02	0.268075	-3.52
0.26	0.1405	0.5339	0.011438	0.106947	0.329534	4E-02	0.268075	-3.28
0.27	0.1778	0.5339	0.011438	0.106947	0.329534	5E-02	0.268075	-3.04
0.28	0.2229	0.5339	0.011438	0.106947	0.329534	6E-02	0.268075	-2.82
0.29	0.2771	0.5339	0.011438	0.106947	0.329534	7E-02	0.268075	-2.60
0.3	0.3415	0.5339	0.011438	0.106947	0.329534	9E-02	0.268075	-2.39
0.31	0.4171	0.5339	0.011438	0.106947	0.329534	1E-01	0.268075	-2.19
0.32	0.5051	0.5339	0.011438	0.106947	0.329534	1E-01	0.268075	-2.00
0.33	0.6063	0.5339	0.011438	0.106947	0.329534	2E-01	0.268075	-1.82
0.34	0.7214	0.5339	0.011438	0.106947	0.329534	2E-01	0.268075	-1.64
0.35	0.8510	0.5339	0.011438	0.106947	0.329534	2E-01	0.268075	-1.48
0.36	0.9950	0.5339	0.011438	0.106947	0.329534	3E-01	0.268075	-1.32
0.37	1.1533	0.5339	0.011438	0.106947	0.329534	3E-01	0.268075	-1.17
0.38	1.3252	0.5339	0.011438	0.106947	0.329534	4E-01	0.268075	-1.03
0.39	1.5094	0.5339	0.011438	0.106947	0.329534	4E-01	0.268075	-0.90
0.4	1.7042	0.5339	0.011438	0.106947	0.329534	5E-01	0.268075	-0.78
0.41	1.9074	0.5339	0.011438	0.106947	0.329534	5E-01	0.268075	-0.67
0.42	2.1163	0.5339	0.011438	0.106947	0.329534	6E-01	0.268075	-0.57
0.43	2.3277	0.5339	0.011438	0.106947	0.329534	6E-01	0.268075	-0.47
0.44	2.5378	0.5339	0.011438	0.106947	0.329534	7E-01	0.268075	-0.39
0.45	2.7429	0.5339	0.011438	0.106947	0.329534	7E-01	0.268075	-0.31
0.46	2.9387	0.5339	0.011438	0.106947	0.329534	8E-01	0.268075	-0.24
0.47	3.1211	0.5339	0.011438	0.106947	0.329534	8E-01	0.268075	-0.18
0.48	3.2859	0.5339	0.011438	0.106947	0.329534	9E-01	0.268075	-0.13
0.49	3.4293	0.5339	0.011438	0.106947	0.329534	9E-01	0.268075	-0.08

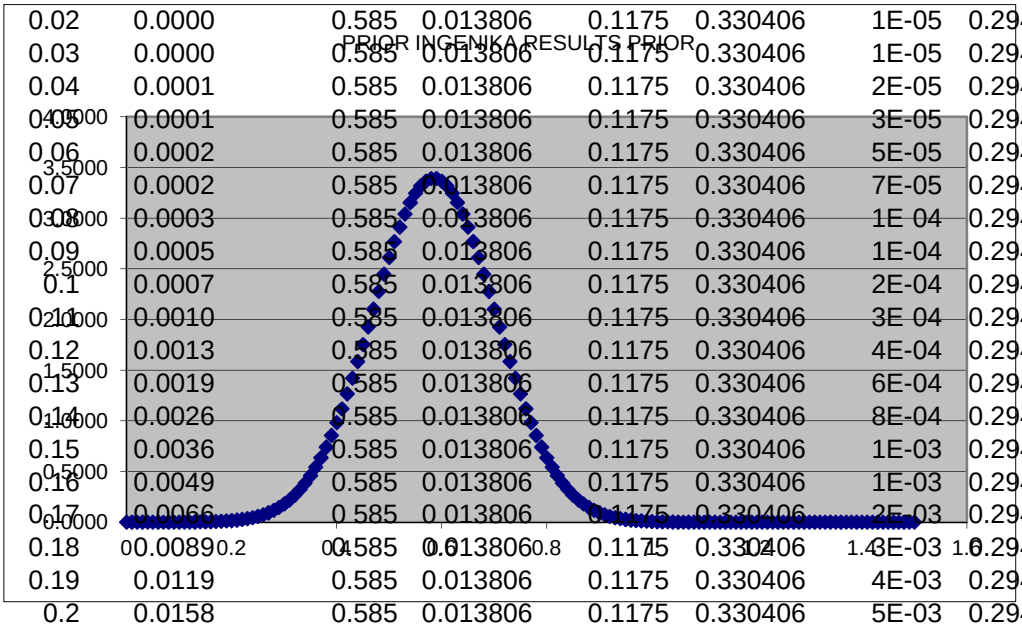


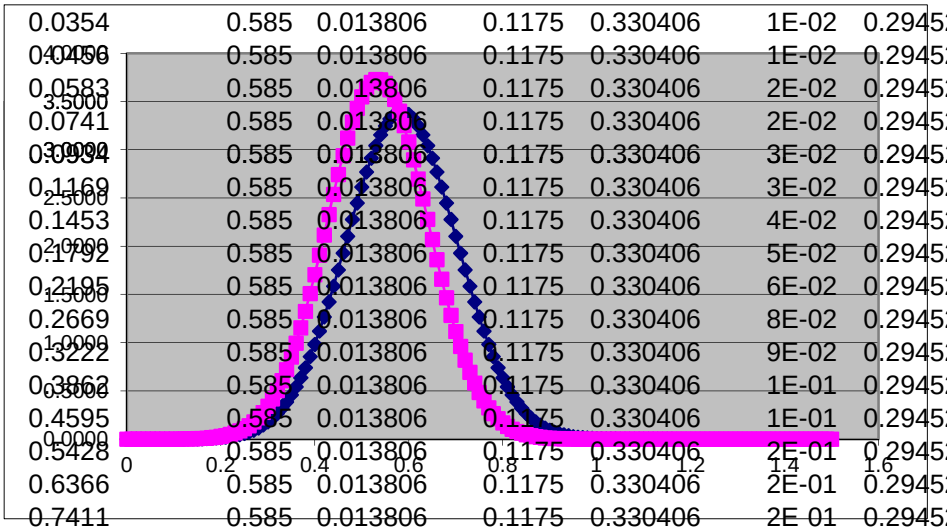
0.5	3.5479	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	-0.05
0.51	3.6386	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	-0.02
0.52	3.6991	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	-0.01
0.53	3.7279	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	0.00
0.54	3.7242	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	0.00
0.55	3.6881	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	-0.01
0.56	3.6206	0.5339	0.011438	0.106947	0.329534	1E+00	0.268075	-0.03
0.57	3.5233	0.5339	0.011438	0.106947	0.329534	9E-01	0.268075	-0.06
0.58	3.3989	0.5339	0.011438	0.106947	0.329534	9E-01	0.268075	-0.09
0.59	3.2503	0.5339	0.011438	0.106947	0.329534	9E-01	0.268075	-0.14
0.6	3.0811	0.5339	0.011438	0.106947	0.329534	8E-01	0.268075	-0.19
0.61	2.8953	0.5339	0.011438	0.106947	0.329534	8E-01	0.268075	-0.25
0.62	2.6971	0.5339	0.011438	0.106947	0.329534	7E-01	0.268075	-0.32
0.63	2.4905	0.5339	0.011438	0.106947	0.329534	7E-01	0.268075	-0.40
0.64	2.2797	0.5339	0.011438	0.106947	0.329534	6E-01	0.268075	-0.49
0.65	2.0686	0.5339	0.011438	0.106947	0.329534	6E-01	0.268075	-0.59
0.66	1.8608	0.5339	0.011438	0.106947	0.329534	5E-01	0.268075	-0.70
0.67	1.6592	0.5339	0.011438	0.106947	0.329534	4E-01	0.268075	-0.81
0.68	1.4666	0.5339	0.011438	0.106947	0.329534	4E-01	0.268075	-0.93
0.69	1.2851	0.5339	0.011438	0.106947	0.329534	3E-01	0.268075	-1.07
0.7	1.1162	0.5339	0.011438	0.106947	0.329534	3E-01	0.268075	-1.21
0.71	0.9611	0.5339	0.011438	0.106947	0.329534	3E-01	0.268075	-1.36
0.72	0.8203	0.5339	0.011438	0.106947	0.329534	2E-01	0.268075	-1.51
0.73	0.6941	0.5339	0.011438	0.106947	0.329534	2E-01	0.268075	-1.68
0.74	0.5821	0.5339	0.011438	0.106947	0.329534	2E-01	0.268075	-1.86
0.75	0.4840	0.5339	0.011438	0.106947	0.329534	1E-01	0.268075	-2.04
0.76	0.3989	0.5339	0.011438	0.106947	0.329534	1E-01	0.268075	-2.24
0.77	0.3259	0.5339	0.011438	0.106947	0.329534	9E-02	0.268075	-2.44
0.78	0.2640	0.5339	0.011438	0.106947	0.329534	7E-02	0.268075	-2.65
0.79	0.2119	0.5339	0.011438	0.106947	0.329534	6E-02	0.268075	-2.87
0.8	0.1687	0.5339	0.011438	0.106947	0.329534	5E-02	0.268075	-3.10
0.81	0.1331	0.5339	0.011438	0.106947	0.329534	4E-02	0.268075	-3.33
0.82	0.1041	0.5339	0.011438	0.106947	0.329534	3E-02	0.268075	-3.58
0.83	0.0807	0.5339	0.011438	0.106947	0.329534	2E-02	0.268075	-3.83
0.84	0.0620	0.5339	0.011438	0.106947	0.329534	2E-02	0.268075	-4.10
0.85	0.0472	0.5339	0.011438	0.106947	0.329534	1E-02	0.268075	-4.37
0.86	0.0357	0.5339	0.011438	0.106947	0.329534	1E-02	0.268075	-4.65
0.87	0.0267	0.5339	0.011438	0.106947	0.329534	7E-03	0.268075	-4.94
0.88	0.0198	0.5339	0.011438	0.106947	0.329534	5E-03	0.268075	-5.24
0.89	0.0146	0.5339	0.011438	0.106947	0.329534	4E-03	0.268075	-5.54
0.9	0.0106	0.5339	0.011438	0.106947	0.329534	3E-03	0.268075	-5.86
0.91	0.0077	0.5339	0.011438	0.106947	0.329534	2E-03	0.268075	-6.18
0.92	0.0055	0.5339	0.011438	0.106947	0.329534	1E-03	0.268075	-6.52
0.93	0.0039	0.5339	0.011438	0.106947	0.329534	1E-03	0.268075	-6.86
0.94	0.0028	0.5339	0.011438	0.106947	0.329534	7E-04	0.268075	-7.21
0.95	0.0019	0.5339	0.011438	0.106947	0.329534	5E-04	0.268075	-7.57
0.96	0.0013	0.5339	0.011438	0.106947	0.329534	4E-04	0.268075	-7.94
0.97	0.0009	0.5339	0.011438	0.106947	0.329534	2E-04	0.268075	-8.32
0.98	0.0006	0.5339	0.011438	0.106947	0.329534	2E-04	0.268075	-8.70
0.99	0.0004	0.5339	0.011438	0.106947	0.329534	1E-04	0.268075	-9.10
1	0.0003	0.5339	0.011438	0.106947	0.329534	7E-05	0.268075	-9.50
1.01	0.0002	0.5339	0.011438	0.106947	0.329534	5E-05	0.268075	-9.91

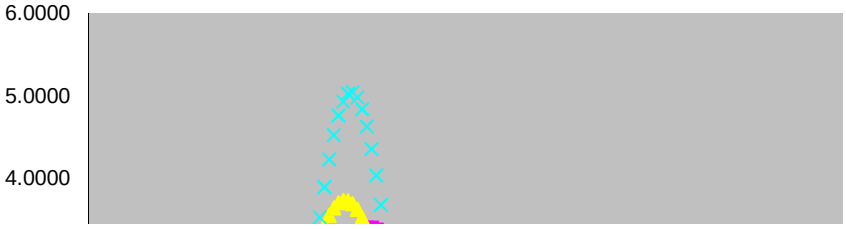
1.02	0.0001	0.5339	0.011438	0.106947	0.329534	3E-05	0.268075	-10.33
1.03	0.0001	0.5339	0.011438	0.106947	0.329534	2E-05	0.268075	-10.76
1.04	0.0001	0.5339	0.011438	0.106947	0.329534	1E-05	0.268075	-11.20
1.05	0.0000	0.5339	0.011438	0.106947	0.329534	9E-06	0.268075	-11.65
1.06	0.0000	0.5339	0.011438	0.106947	0.329534	6E-06	0.268075	-12.10
1.07	0.0000	0.5339	0.011438	0.106947	0.329534	3E-06	0.268075	-12.57
1.08	0.0000	0.5339	0.011438	0.106947	0.329534	2E-06	0.268075	-13.04
1.09	0.0000	0.5339	0.011438	0.106947	0.329534	1E-06	0.268075	-13.52
1.1	0.0000	0.5339	0.011438	0.106947	0.329534	8E-07	0.268075	-14.01
1.11	0.0000	0.5339	0.011438	0.106947	0.329534	5E-07	0.268075	-14.51
1.12	0.0000	0.5339	0.011438	0.106947	0.329534	3E-07	0.268075	-15.02
1.13	0.0000	0.5339	0.011438	0.106947	0.329534	2E-07	0.268075	-15.54
1.14	0.0000	0.5339	0.011438	0.106947	0.329534	1E-07	0.268075	-16.06
1.15	0.0000	0.5339	0.011438	0.106947	0.329534	6E-08	0.268075	-16.60
1.16	0.0000	0.5339	0.011438	0.106947	0.329534	4E-08	0.268075	-17.14
1.17	0.0000	0.5339	0.011438	0.106947	0.329534	2E-08	0.268075	-17.69
1.18	0.0000	0.5339	0.011438	0.106947	0.329534	1E-08	0.268075	-18.25
1.19	0.0000	0.5339	0.011438	0.106947	0.329534	7E-09	0.268075	-18.82
1.2	0.0000	0.5339	0.011438	0.106947	0.329534	4E-09	0.268075	-19.40
1.21	0.0000	0.5339	0.011438	0.106947	0.329534	2E-09	0.268075	-19.98
1.22	0.0000	0.5339	0.011438	0.106947	0.329534	1E-09	0.268075	-20.58
1.23	0.0000	0.5339	0.011438	0.106947	0.329534	6E-10	0.268075	-21.18
1.24	0.0000	0.5339	0.011438	0.106947	0.329534	3E-10	0.268075	-21.80
1.25	0.0000	0.5339	0.011438	0.106947	0.329534	2E-10	0.268075	-22.42
1.26	0.0000	0.5339	0.011438	0.106947	0.329534	1E-10	0.268075	-23.05
1.27	0.0000	0.5339	0.011438	0.106947	0.329534	5E-11	0.268075	-23.69
1.28	0.0000	0.5339	0.011438	0.106947	0.329534	3E-11	0.268075	-24.34
1.29	0.0000	0.5339	0.011438	0.106947	0.329534	1E-11	0.268075	-24.99
1.3	0.0000	0.5339	0.011438	0.106947	0.329534	7E-12	0.268075	-25.66
1.31	0.0000	0.5339	0.011438	0.106947	0.329534	4E-12	0.268075	-26.33
1.32	0.0000	0.5339	0.011438	0.106947	0.329534	2E-12	0.268075	-27.02
1.33	0.0000	0.5339	0.011438	0.106947	0.329534	9E-13	0.268075	-27.71
1.34	0.0000	0.5339	0.011438	0.106947	0.329534	5E-13	0.268075	-28.41
1.35	0.0000	0.5339	0.011438	0.106947	0.329534	2E-13	0.268075	-29.12
1.36	0.0000	0.5339	0.011438	0.106947	0.329534	1E-13	0.268075	-29.84
1.37	0.0000	0.5339	0.011438	0.106947	0.329534	5E-14	0.268075	-30.56
1.38	0.0000	0.5339	0.011438	0.106947	0.329534	3E-14	0.268075	-31.30
1.39	0.0000	0.5339	0.011438	0.106947	0.329534	1E-14	0.268075	-32.04
1.4	0.0000	0.5339	0.011438	0.106947	0.329534	6E-15	0.268075	-32.79
1.41	0.0000	0.5339	0.011438	0.106947	0.329534	3E-15	0.268075	-33.56
1.42	0.0000	0.5339	0.011438	0.106947	0.329534	1E-15	0.268075	-34.33
1.43	0.0000	0.5339	0.011438	0.106947	0.329534	6E-16	0.268075	-35.11
1.44	0.0000	0.5339	0.011438	0.106947	0.329534	3E-16	0.268075	-35.89
1.45	0.0000	0.5339	0.011438	0.106947	0.329534	1E-16	0.268075	-36.69
1.46	0.0000	0.5339	0.011438	0.106947	0.329534	5E-17	0.268075	-37.50
1.47	0.0000	0.5339	0.011438	0.106947	0.329534	2E-17	0.268075	-38.31
1.48	0.0000	0.5339	0.011438	0.106947	0.329534	1E-17	0.268075	-39.13
1.49	0.0000	0.5339	0.011438	0.106947	0.329534	4E-18	0.268075	-39.96
1.5	0.0000	0.5339	0.011438	0.106947	0.329534	2E-18	0.268075	-40.80

PRIOR INGENIKA RESULTS

model	PRIOR	mean density	var	se	90%CV	num	dem	exp
0	0.0000	**0.585**	0.013806	**0.1175**	0.330406	4E-06	0.294529	-12.39
0.01	0.0000	0.585	0.013806	0.1175	0.330406	6E-06	0.294529	-11.97
0.02	0.0000	0.585	0.013806	0.1175	0.330406	1E-05	0.294529	-11.56
0.03	0.0000	0.585	0.013806	0.1175	0.330406	1E-05	0.294529	-11.16
0.04	0.0001	0.585	0.013806	0.1175	0.330406	2E-05	0.294529	-10.76
0.05	0.0001	0.585	0.013806	0.1175	0.330406	3E-05	0.294529	-10.37
0.06	0.0002	0.585	0.013806	0.1175	0.330406	5E-05	0.294529	-9.98
0.07	0.0002	0.585	0.013806	0.1175	0.330406	7E-05	0.294529	-9.61
0.08	0.0003	0.585	0.013806	0.1175	0.330406	1E 04	0.294529	-9.24
0.09	0.0005	0.585	0.013806	0.1175	0.330406	1E-04	0.294529	-8.87
0.1	0.0007	0.585	0.013806	0.1175	0.330406	2E-04	0.294529	-8.52
0.11	0.0010	0.585	0.013806	0.1175	0.330406	3E 04	0.294529	-8.17
0.12	0.0013	0.585	0.013806	0.1175	0.330406	4E-04	0.294529	-7.83
0.13	0.0019	0.585	0.013806	0.1175	0.330406	6E-04	0.294529	-7.50
0.14	0.0026	0.585	0.013806	0.1175	0.330406	8E-04	0.294529	-7.17
0.15	0.0036	0.585	0.013806	0.1175	0.330406	1E-03	0.294529	-6.85
0.16	0.0049	0.585	0.013806	0.1175	0.330406	1E-03	0.294529	-6.54
0.17	0.0066	0.585	0.013806	0.1175	0.330406	2E-03	0.294529	-6.24
0.18	0.0089	0.585	0.013806	0.1175	0.330406	3E-03	0.294529	-5.94
0.19	0.0119	0.585	0.013806	0.1175	0.330406	4E-03	0.294529	-5.65
0.2	0.0158	0.585	0.013806	0.1175	0.330406	5E-03	0.294529	-5.37
0.21	0.0208	0.585	0.013806	0.1175	0.330406	6E-03	0.294529	-5.09
0.22	0.0273	0.585	0.013806	0.1175	0.330406	8E-03	0.294529	-4.82
0.23	0.0354	0.585	0.013806	0.1175	0.330406	1E-02	0.294529	-4.56
0.24	0.0456	0.585	0.013806	0.1175	0.330406	1E-02	0.294529	-4.31
0.25	0.0583	0.585	0.013806	0.1175	0.330406	2E-02	0.294529	-4.06
0.26	0.0741	0.585	0.013806	0.1175	0.330406	2E-02	0.294529	-3.83
0.27	0.0934	0.585	0.013806	0.1175	0.330406	3E-02	0.294529	-3.59
0.28	0.1169	0.585	0.013806	0.1175	0.330406	3E-02	0.294529	-3.37
0.29	0.1453	0.585	0.013806	0.1175	0.330406	4E-02	0.294529	-3.15
0.3	0.1792	0.585	0.013806	0.1175	0.330406	5E-02	0.294529	-2.94
0.31	0.2195	0.585	0.013806	0.1175	0.330406	6E-02	0.294529	-2.74
0.32	0.2669	0.585	0.013806	0.1175	0.330406	8E-02	0.294529	-2.54
0.33	0.3222	0.585	0.013806	0.1175	0.330406	9E-02	0.294529	-2.35
0.34	0.3863	0.585	0.013806	0.1175	0.330406	1E-01	0.294529	-2.17
0.35	0.4595	0.585	0.013806	0.1175	0.330406	1E-01	0.294529	-2.00
0.36	0.5428	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.83
0.37	0.6366	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.67
0.38	0.7411	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.52
0.39	0.8567	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.38
0.4	0.9830	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.24
0.41	1.1199	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.11
0.42	1.2667							.99
0.43	1.4223							.87
0.44	1.5856							.76
0.45	1.7548							.66
0.46	1.9281							.57
0.47	2.1031							.48
0.48	2.2776							.40
0.49	2.4486							.33







0.5	2.6136	0.585	0.013806	0.1175	0.330406	8E-01	0.294529	-0.26
0.51	2.7695	0.585	0.013806	0.1175	0.330406	8E-01	0.294529	-0.20
0.52	2.9135	0.585	0.013806	0.1175	0.330406	9E-01	0.294529	-0.15
0.53	3.0429	0.585	0.013806	0.1175	0.330406	9E-01	0.294529	-0.11
0.54	3.1552	0.585	0.013806	0.1175	0.330406	9E-01	0.294529	-0.07
0.55	3.2479	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.04
0.56	3.3193	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.02
0.57	3.3677	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.01
0.58	3.3922	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	0.00
0.59	3.3922	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	0.00
0.6	3.3677	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.01
0.61	3.3193	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.02
0.62	3.2479	0.585	0.013806	0.1175	0.330406	1E+00	0.294529	-0.04
0.63	3.1552	0.585	0.013806	0.1175	0.330406	9E-01	0.294529	-0.07
0.64	3.0429	0.585	0.013806	0.1175	0.330406	9E-01	0.294529	-0.11
0.65	2.9135	0.585	0.013806	0.1175	0.330406	9E-01	0.294529	-0.15
0.66	2.7695	0.585	0.013806	0.1175	0.330406	8E-01	0.294529	-0.20
0.67	2.6136	0.585	0.013806	0.1175	0.330406	8E-01	0.294529	-0.26
0.68	2.4486	0.585	0.013806	0.1175	0.330406	7E-01	0.294529	-0.33
0.69	2.2776	0.585	0.013806	0.1175	0.330406	7E-01	0.294529	-0.40
0.7	2.1031	0.585	0.013806	0.1175	0.330406	6E-01	0.294529	-0.48
0.71	1.9281	0.585	0.013806	0.1175	0.330406	6E-01	0.294529	-0.57
0.72	1.7548	0.585	0.013806	0.1175	0.330406	5E-01	0.294529	-0.66
0.73	1.5856	0.585	0.013806	0.1175	0.330406	5E-01	0.294529	-0.76
0.74	1.4223	0.585	0.013806	0.1175	0.330406	4E-01	0.294529	-0.87
0.75	1.2667	0.585	0.013806	0.1175	0.330406	4E-01	0.294529	-0.99
0.76	1.1199	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.11
0.77	0.9830	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.24
0.78	0.8567	0.585	0.013806	0.1175	0.330406	3E-01	0.294529	-1.38
0.79	0.7411	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.52
0.8	0.6366	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.67
0.81	0.5428	0.585	0.013806	0.1175	0.330406	2E-01	0.294529	-1.83
0.82	0.4595	0.585	0.013806	0.1175	0.330406	1E-01	0.294529	-2.00
0.83	0.3862	0.585	0.013806	0.1175	0.330406	1E-01	0.294529	-2.17
0.84	0.3222	0.585	0.013806	0.1175	0.330406	9E-02	0.294529	-2.35
0.85	0.2669	0.585	0.013806	0.1175	0.330406	8E-02	0.294529	-2.54
0.86	0.2195	0.585	0.013806	0.1175	0.330406	6E-02	0.294529	-2.74
0.87	0.1792	0.585	0.013806	0.1175	0.330406	5E-02	0.294529	-2.94
0.88	0.1453	0.585	0.013806	0.1175	0.330406	4E-02	0.294529	-3.15
0.89	0.1169	0.585	0.013806	0.1175	0.330406	3E-02	0.294529	-3.37
0.9	0.0934	0.585	0.013806	0.1175	0.330406	3E-02	0.294529	-3.59
0.91	0.0741	0.585	0.013806	0.1175	0.330406	2E-02	0.294529	-3.83
0.92	0.0583	0.585	0.013806	0.1175	0.330406	2E-02	0.294529	-4.06
0.93	0.0456	0.585	0.013806	0.1175	0.330406	1E-02	0.294529	-4.31
0.94	0.0354	0.585	0.013806	0.1175	0.330406	1E-02	0.294529	-4.56
0.95	0.0273	0.585	0.013806	0.1175	0.330406	8E-03	0.294529	-4.82
0.96	0.0208	0.585	0.013806	0.1175	0.330406	6E-03	0.294529	-5.09
0.97	0.0158	0.585	0.013806	0.1175	0.330406	5E-03	0.294529	-5.37
0.98	0.0119	0.585	0.013806	0.1175	0.330406	4E-03	0.294529	-5.65
0.99	0.0089	0.585	0.013806	0.1175	0.330406	3E-03	0.294529	-5.94
1	0.0066	0.585	0.013806	0.1175	0.330406	2E-03	0.294529	-6.24
1.01	0.0049	0.585	0.013806	0.1175	0.330406	1E-03	0.294529	-6.54

1.02	0.0036	0.585	0.013806	0.1175	0.330406	1E-03	0.294529	-6.85
1.03	0.0026	0.585	0.013806	0.1175	0.330406	8E-04	0.294529	-7.17
1.04	0.0019	0.585	0.013806	0.1175	0.330406	6E-04	0.294529	-7.50
1.05	0.0013	0.585	0.013806	0.1175	0.330406	4E-04	0.294529	-7.83
1.06	0.0010	0.585	0.013806	0.1175	0.330406	3E-04	0.294529	-8.17
1.07	0.0007	0.585	0.013806	0.1175	0.330406	2E-04	0.294529	-8.52
1.08	0.0005	0.585	0.013806	0.1175	0.330406	1E-04	0.294529	-8.87
1.09	0.0003	0.585	0.013806	0.1175	0.330406	1E-04	0.294529	-9.24
1.1	0.0002	0.585	0.013806	0.1175	0.330406	7E-05	0.294529	-9.61
1.11	0.0002	0.585	0.013806	0.1175	0.330406	5E-05	0.294529	-9.98
1.12	0.0001	0.585	0.013806	0.1175	0.330406	3E-05	0.294529	-10.37
1.13	0.0001	0.585	0.013806	0.1175	0.330406	2E-05	0.294529	-10.76
1.14	0.0000	0.585	0.013806	0.1175	0.330406	1E-05	0.294529	-11.16
1.15	0.0000	0.585	0.013806	0.1175	0.330406	1E-05	0.294529	-11.56
1.16	0.0000	0.585	0.013806	0.1175	0.330406	6E-06	0.294529	-11.97
1.17	0.0000	0.585	0.013806	0.1175	0.330406	4E-06	0.294529	-12.39
1.18	0.0000	0.585	0.013806	0.1175	0.330406	3E-06	0.294529	-12.82
1.19	0.0000	0.585	0.013806	0.1175	0.330406	2E-06	0.294529	-13.26
1.2	0.0000	0.585	0.013806	0.1175	0.330406	1E-06	0.294529	-13.70
1.21	0.0000	0.585	0.013806	0.1175	0.330406	7E-07	0.294529	-14.15
1.22	0.0000	0.585	0.013806	0.1175	0.330406	5E-07	0.294529	-14.60
1.23	0.0000	0.585	0.013806	0.1175	0.330406	3E-07	0.294529	-15.07
1.24	0.0000	0.585	0.013806	0.1175	0.330406	2E-07	0.294529	-15.54
1.25	0.0000	0.585	0.013806	0.1175	0.330406	1E-07	0.294529	-16.02
1.26	0.0000	0.585	0.013806	0.1175	0.330406	7E-08	0.294529	-16.50
1.27	0.0000	0.585	0.013806	0.1175	0.330406	4E-08	0.294529	-16.99
1.28	0.0000	0.585	0.013806	0.1175	0.330406	3E-08	0.294529	-17.49
1.29	0.0000	0.585	0.013806	0.1175	0.330406	2E-08	0.294529	-18.00
1.3	0.0000	0.585	0.013806	0.1175	0.330406	9E-09	0.294529	-18.51
1.31	0.0000	0.585	0.013806	0.1175	0.330406	5E-09	0.294529	-19.04
1.32	0.0000	0.585	0.013806	0.1175	0.330406	3E-09	0.294529	-19.56
1.33	0.0000	0.585	0.013806	0.1175	0.330406	2E-09	0.294529	-20.10
1.34	0.0000	0.585	0.013806	0.1175	0.330406	1E-09	0.294529	-20.64
1.35	0.0000	0.585	0.013806	0.1175	0.330406	6E-10	0.294529	-21.19
1.36	0.0000	0.585	0.013806	0.1175	0.330406	4E-10	0.294529	-21.75
1.37	0.0000	0.585	0.013806	0.1175	0.330406	2E-10	0.294529	-22.32
1.38	0.0000	0.585	0.013806	0.1175	0.330406	1E-10	0.294529	-22.89
1.39	0.0000	0.585	0.013806	0.1175	0.330406	6E-11	0.294529	-23.47
1.4	0.0000	0.585	0.013806	0.1175	0.330406	4E-11	0.294529	-24.06
1.41	0.0000	0.585	0.013806	0.1175	0.330406	2E-11	0.294529	-24.65
1.42	0.0000	0.585	0.013806	0.1175	0.330406	1E-11	0.294529	-25.25
1.43	0.0000	0.585	0.013806	0.1175	0.330406	6E-12	0.294529	-25.86
1.44	0.0000	0.585	0.013806	0.1175	0.330406	3E-12	0.294529	-26.47
1.45	0.0000	0.585	0.013806	0.1175	0.330406	2E-12	0.294529	-27.10
1.46	0.0000	0.585	0.013806	0.1175	0.330406	9E-13	0.294529	-27.73
1.47	0.0000	0.585	0.013806	0.1175	0.330406	5E-13	0.294529	-28.36
1.48	0.0000	0.585	0.013806	0.1175	0.330406	3E-13	0.294529	-29.01
1.49	0.0000	0.585	0.013806	0.1175	0.330406	1E-13	0.294529	-29.66
1.5	0.0000	0.585	0.013806	0.1175	0.330406	7E-14	0.294529	-30.32

model	PRIOR	DATA	prior*likelihood	**posterior**	1SE 66%	90%	
0	0.0000	0.0000	2.03676E-10	0.0000			
0.01	0.0000	0.0000	4.92269E-10	0.0000			
0.02	0.0000	0.0000	1.1709E-09	0.0000			
0.03	0.0000	0.0001	2.74093E-09	0.0000			
0.04	0.0001	0.0001	6.31439E-09	0.0000			
0.05	0.0001	0.0001	1.4316E-08	0.0000			
0.06	0.0002	0.0002	3.19426E-08	0.0000			
0.07	0.0002	0.0003	7.01417E-08	0.0000			
0.08	0.0003	0.0005	1.51579E-07	0.0000			
0.09	0.0005	0.0007	3.22374E-07	0.0000			
0.1	0.0007	0.0010	6.74741E-07	0.0000			
0.11	0.0010	0.0014	1.38986E-06	0.0000			
0.12	0.0013	0.0021	2.8175E-06	0.0000			
0.13	0.0019	0.0030	5.62099E-06	0.0000			
0.14	0.0026	0.0042	1.10362E-05	0.0000			
0.15	0.0036	0.0059	2.13247E-05	0.0000			
0.16	0.0049	0.0083	4.05513E-05	0.0000			
0.17	0.0066	0.0114	7.58897E-05	0.0000			
0.18	0.0089	0.0156	0.000139771	0.0001			
0.19	0.0119	0.0212	0.000253345	0.0001			
0.2	0.0158	0.0285	0.00045192	0.0002			
0.21	0.0208	0.0381	0.000793358	0.0003			
0.22	0.0273	0.0503	0.001370674	0.0006			
0.23	0.0354	0.0659	0.002330538	0.0010			
0.24	0.0456	0.0855	0.003899739	0.0016			
0.25	0.0583	0.1101	0.006422028	0.0027			
0.26	0.0741	0.1405	0.010407971	0.0044			
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0.3	0.1792	0.3415	0.061194809	0.0257			
0.31	0.2195	0.4171	0.091557706	0.0384			
0.32	0.2669	0.5051	0.134813229	0.0565			
0.33	0.3222	0.6063	0.195356288	0.0819			
0.34	0.3862	0.7214	0.278599003	0.1169			
0.35	0.4595	0.8510	0.391011026	0.1640			
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0.37	0.6366	1.1533	0.734141432	0.3079			20
0.38	0.7411	1.3252	0.982112006	0.4119			19
0.39	0.8567	1.5094	1.29300316	0.5423			18
0.4	0.9830	1.7042	1.675310971	0.7027			17
0.41	1.1199	1.9074	2.136232702	0.8960			16
0.42	1.2667	2.1163	2.680766365	1.1244			15
0.43	1.4223	2.3277	3.310752021	1.3886		1.3886	14
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0.49	2.4486	3.4293	8.3972225	3.5220	3.5220	3.5220	8

0.5	2.6136	3.5479	9.272659442	3.8892	3.8892	3.8892	7
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0.53	3.0429	**3.7279**	11.34367925	4.7579	4.7579	4.7579	4
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0.56	3.3193	3.6206	12.01763719	**5.0405**	5.0405	5.0405	1
0.57	3.3677	3.5233	11.86557255	4.9768	4.9768	4.9768	2
0.58	**3.3922**	3.3989	11.52963583	4.8359	4.8359	4.8359	3
0.59	**3.3922**	3.2503	11.02553726	4.6244	4.6244	4.6244	4
0.6	3.3677	3.0811	10.37626878	4.3521	4.3521	4.3521	5
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0.7	2.1031	1.1162	2.347502925	0.9846			15
0.71	1.9281	0.9611	1.85300963	0.7772		**91**	16
0.72	1.7548	0.8203	1.439482837	0.6038			17
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1.45	0.0000	0.0000	2.51145E-27	0.0000
1.46	0.0000	0.0000	5.97711E-28	0.0000
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1.5	0.0000	0.0000	1.63431E-30	0.0000
	100	**100**	**238**	**100.00**

From: Heard, Douglas FLNR:EX
To: Zimmerman, Ted FLNR:EX;
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MOOSE DENSITY AND COMPOSITION IN THE NORTHERN WILLISTON WATERSHED, BRITISH COLUMBIA, JANUARY 2007.

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2007

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ABSTRACT

We determined the population size, density and composition of moose (*Alces alces*) in the northern Williston watershed of north central British Columbia in January of 2007, to assess whether moose populations have changed since 2000. We used a stratified random block survey (Gasaway et al. 1986) where stratification was based on typical cover types used by moose in early winter. Estimates of moose numbers were corrected for sightability bias based on vegetation cover around each moose. The population estimate for the 10,379 km^2 northern Williston watershed study area was 5,500 ± 1,110 ($\bar{x}$ ± SE) moose and the estimated density was 0.53 ± 0.107 moose/km^2. By using Bayesian updating, with the 2000 density estimate (Demarchi 2000) as the prior, we obtained a final (posterior) density estimate of 0.56 ± 0.079 moose/km^2 and a coefficient of variation of 14%. The observed calf:cow ratio was 21 ± 3.5 calves per 100 cows ($\bar{x}$ ± SE), while the observed sex ratio was 62 ± 13.9 bulls per 100 cows. There was no indication that the population of moose in the northern Williston watershed had changed since 2000. Given the relatively low calf:cow ratio and relatively high hunting by both Aboriginal and licensed hunters, we recommend against allowing any increase in licensed hunting.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Moose (*Alces alces*) are the most abundant big game animal in the Omineca region of northern British Columbia. They are hunted by Aboriginal People and licensed hunters for sustenance and trophies. In order to better understand the effects of hunting, changing landscapes, new management programs and predator-prey relationships, estimates of the rate of population change are crucial (Gasaway et al. 1986). Concerns have been expressed by members of the Tsay Keh Dene Band that moose numbers have declined because of hunting (Johnny Pierre, personal communication). In February 2000, the population was estimated at 4,300 ± 1,440 moose ($\bar{x}$ ± 90 % CI) with low calf recruitment at 18 ± 7 calves per 100 cows (Demarchi 2000). We carried out a stratified random block inventory (Gasaway et al. 1986) in January 2007 to estimate the population and composition of moose wintering in the northern Williston watershed. We interpreted the results in relation to Demarchi's (2000) previous population estimate from this area and to moose population dynamics from elsewhere in the Omineca region with similar hunting seasons. Because there have been no changes since 2000 in the hunting regulations or the number of Limited Entry Hunting permits issued for moose, we believed that 2007 population and composition estimates would be similar to those documented by Demarchi (2000).

STUDY AREA

The 10,379 km^2 northern Williston study area encompassed the Omineca wildlife management units 7-37, 7-38, 7-39, 7-40, 7-41 and the entire Ospika, Akie, Kwadacha, Warneford, Finlay, Ingenika, Mesilinka and Osilinka River watersheds (Fig.1). The boundary of the study area was equivalent to Demarchi's (2000) north zone study area except along the southern boundary where our study area extends slightly further, to the height of land between the Omineca and Mesilinka Rivers, a difference of 2,741 km^2. We excluded high elevation terrain (area > 1200 m), Williston Reservoir and Thutade

Lake from stratification (Figs. 2,3) and sampling because of the lack of suitable moose wintering habitat in these areas (Demarchi 2000).

The study area consisted primarily of the sub-boreal spruce (SBS), boreal white and black spruce (BWBS) and Engelmann spruce subalpine fir (ESSF) biogeoclimatic zones (Meidinger and Pojar 1991). In the SBS, hybrid white-Engelmann spruce (*Picea glauca* × *engelmannii*) and subalpine fir (*Abies lasiocarpa*) dominate, with extensive successional stands of lodgepole pine (*Pinus contorta*) and trembling aspen (*Populus tremuloides*) as the primary tree species (Meidinger and Pojar 1991). The BWBS occurred at lower elevations in the northern portions of the study area and was characterized by white spruce (*Picea glauca*) and trembling aspen on productive soils, pine-lichen forests on dry sites, mixed pine and black spruce (*Picea mariana*) forests on north-facing aspects and black spruce stands on poorly drained sites. At higher elevations, the ESSF was dominated by Engelmann spruce and subalpine fir, with lodgepole pine as the seral species. Mean annual precipitation ranges from 33 - 100 cm, for these biogeoclimatic zones at northern latitudes (i.e., 56° N), with 30 - 55 % as snow. An average annual temperature between 0 and 3 °C is typical for this area. Snow persists for 5 - 7 months of the year, with the least amount of precipitation during the late winter and spring (February - May) (Meidinger and Pojar 1991).

Compared to other areas of the Omineca region, only a small portion of the northern Williston watershed has been disturbed by logging or other industrial developments. Historically, forest fires have been the dominant landscape disturbance (Johnson et al. 2002), with logging occurring only in the last 25 years.

METHODS

Sampling Strategy

Stratification of the study area was conducted prior to any field work. We divided the study area into 2 strata, based on vegetation attributes that predict moose density in early winter (Heard et al. 1999*a*) and previous moose observations in the study area (Demarchi 2000). Data on vegetation attributes were acquired from three provincial data

bases stored in the Land and Resource Data Warehouse (LRDW). These were: Vegetation Resources Inventory (VRI), Forest Inventory Polygon (FIP) and RESULTS. Using these data sources, we predicted that young forests (≤ 40 years) and shrubby open areas, irrespective of the nature of disturbance (human or "natural"), would contain the highest densities of moose (Heard et al. 1999*a*; Heard et al. 1999*b*; Demarchi 2000; Heard et al. 2001). These areas were labeled stratum 1 (S1). We used the following VRI descriptors to select shrubby, open areas: M (meadow), OR (open range), NPBR (non productive brush), NCBR (non commercial brush) and NSR (not sufficiently restocked). We also included all areas with shrub crown closure ≥ 60 % as S1. We predicted that stands > 40 years and the remainder of the study area not classified as S1 (gravel bars, riparian areas and cut blocks or burns < 5 years old) would contain low moose densities. These areas were labelled stratum 2 (S2).

To begin to demarcate sample units after stratifying, we overlaid a grid of ~9 km^2 (3.2 × 2.8 km) cells over the study area (this layer of grid cells is stored in the provincial LRDW and named "A5K Sampling Tiles"). To improve the likelihood of observing moose in each sample unit (Heard et al. 1999*a*), adjacent cells were arbitrarily joined to form S1 sample units with ≥ 4 to 9 km^2 of high moose density area (Fig. 3). This amalgamation process was repeated for low-density S2 sample units, although cells were joined so that ≥ 5 to 9 km^2 of low moose density area was present in each S2 sample unit. Random selections of 25 sample units were then drawn from each amalgamated S1 (from a total of 293) and S2 (from a total of 1255) sample units (Fig. 2).

Between the 8th and 12th of January, a crew consisting of 2 observers, a navigator (who recorded the data) and a pilot (Appendix A) surveyed sample units from a Bell 206B Jet Ranger Helicopter, 50-150 m above the ground. We located sample unit boundaries using digital maps (shapefiles) loaded into ArcPad™ 7.0 (Environmental Systems Research Institute 2006) on a Hewlitt-Packard iPAQ™ (Hewlitt-Packard Development Company 2006) handheld computer, connected to a Garmin Mobile 10™ (Garmin International, Inc. 2006) wireless GPS unit. This allowed the navigator to instantaneously determine the location of observers and moose relative to strata and sample unit boundaries. Search patterns consisted of transects 200 – 400 m apart

(depending on vegetation cover) covering each sample unit. Once a moose was sighted, we circled it and recorded age and sex according to these categories: calf (~ 8 months old), cow or bull, based on the presence or absence of antlers, the presence or absence of a white vulva patch, bell length and shape, and facial colouration and morphology (Heard et al. 1999*a*). Vegetation cover, to the nearest 5 %, was recorded within a 9 m radius of where the moose was first seen according to the standards developed by Unsworth et al. (1998). The positions of all groups were recorded with a GPS location using a Garmin GPSMAP^{TM} 76s receiver (Garmin International, Inc. 2006).

Data Analysis

Vegetation cover estimates were used to correct for sightability bias to determine stratum specific density and population estimates. These estimates were grouped into 5 classes each with a specific detection probability (DP) and sightability correction factor (SCF), as determined by Quayle et al. (2001), following the approach of Anderson and Lindzey (1996) (Table 1). The DP included data from sightability tests carried out within the study area (D. Heard, unpubl. data).

For each stratum, a naïve population and sampling variance estimate for unequal sized sample units was calculated using Jolly (1969). The naïve population estimate was then multiplied by the mean stratum-specific SCF to obtain the corrected population estimate. The corrected variance of that population estimate was the sum of 1) the naïve sampling variance multiplied by the squared mean SCF (Goodman 1960; Heard 1987), 2) the sightability variance, and 3) the model variance, where sightability and model variance were calculated using the program Aerial Survey (Unsworth et al. 1998) and the DP's from Quayle et al. (2001). We used Jolly (1969) rather than Aerial Survey (Unsworth et al. 1998) to calculate the sampling variance because Aerial Survey calculates a population estimate using a sampling fraction based on the number of surveyed sample units divided by the total number of sample units in the study area. Our analysis used a sampling fraction equal to the surveyed area divided by the total stratum area. In this approach, we are not limited to sample units of equal size.

The total population estimate was the sum of the corrected population estimate from the 2 strata and its variance was the sum of the 2 stratum-specific variances.

Overall density was obtained by dividing the total population estimate by the area of both strata combined.

We used Bayesian updating (Gelman et al. 2000) to calculate our final 2007, i.e., the "posterior", population and variance estimates, where Bayesian updating involved weighting the prior information with data from this study by the inverse of their variances. The previous moose inventory conducted in this area (Demarchi 2000) was used as the prior data because we had no reason to believe that the moose density had changed and no other prior information was available. Since the surveyed areas varied between the 2 inventories, we updated density rather than the population estimate by:

$$\theta_{posterior} = [(\theta_{prior} / \sigma^2_{prior}) + (\theta_{data} / \sigma^2_{data})] / ((1/\sigma^2_{prior})+(1/\sigma^2_{data}))$$

and

$$\sigma^2_{posterior} = 1 / ((1/\sigma^2_{prior})+(1/\sigma^2_{data}))$$

where

θ is the mean density, and

σ^2 is the variance of the mean density.

The population composition for the observed and estimated (corrected for sightability) number of calves and bulls per 100 cows was calculated using a jackknife estimator (Efron 1982). The number of cows, calves and bulls was summed for each sample unit to determine the mean and variance of calf:cow and bull:cow ratios. Ratios were calculated across both strata due to the small number of S2 sample units surveyed.

We measured the search effort for the high moose density stratum (S1) only because we did not measure search time independently where both high and low moose density strata were surveyed within one sample unit. We compared vegetation cover estimates between cows with calves (maternal cows), cows without calves (barren cows) and bulls, to see if segregation by sex or maternal status may have biased our observed calf:cow and bull:cow ratios, using the Kruskal-Wallis test, after examining assumptions of normality and homogeneity of variance (Zar 1999). All statistical procedures were conducted using Stata™ (Release 9.0, StataCorp LP 2005).

RESULTS

Search effort and conditions

Temperatures during the inventory ranged from -12° to -28 °C with clear to overcast conditions. The search effort during the inventory was 4.0 ± 0.35 min/km^2 ($\bar{x}$ ± SE; *n* = 29). Snow covered 100 % of the study area.

Population size and density

We estimated 5,500 ± 1,110 ($\bar{x}$ ± SE) moose in the study area based on our count of 178 moose in 45 sample units (Table 2). As expected, mean corrected density was much higher in stratum 1 at 1.28 moose/km^2 than stratum 2 at 0.41 moose/km^2. There were, however, fewer moose in stratum 1 than stratum 2 (1,960 vs 3,600 respectively) because the area of stratum 2 was almost 6 times larger. Most of the variance in the population estimate came from stratum 2, where the CV was 0.30 (Table 2).

Our overall corrected density of 0.53 moose/km^2 was similar to Demarchi's (2000) estimate of 0.59 moose/km^2. The posterior density was 0.56 ± 0.079 moose/km^2 ($\bar{x}$ ± SE) for the northern Williston watershed in 2007, with a 90 % CI of 0.42 to 0.70 moose/km^2 and CV of 0.14 (Fig. 4).

Group Size and Composition

Other than the 20 cow:calf pairs we observed, most moose were observed alone (60% of the bulls and 85% of the cows) with a maximum group size of 4 and a mean of 1.1. Moose in groups were sexually segregated. Of the 20 groups of 2 to 4 moose, 19 were all bulls or all cows, with one mixed sex group of 2 bulls and 2 cows.

The observed and sightability corrected estimate of calf:cow ratios were similar at 21 ± 3.5 calves and 22 ± 4.0 calves per 100 cows ($\bar{x}$ ± SE), respectively, based on the 20 calves and 95 cows we observed. All calves were singles; there were no twins. The observed and sightability corrected sex ratios were also similar at 62 ± 13.9 bulls and 57

± 13.4 bulls per 100 cows, respectively, based on the 59 bulls and 95 cows we observed. Many bulls still carried antlers during the inventory.

Distribution

Although moose in groups were sexually segregated, sexes did not segregate on the basis of cover. Most moose were observed in VCC 1, with fewer moose groups observed and estimated in denser cover classes (Table 3). Bulls and barren cows were observed most often in S1 and the only observation exceeding VCC 3 was of an unclassified moose in mature spruce forest. Vegetation cover was not statistically different among bulls, cows with calves and barren cows ($\chi^2_{0.1,2}$ = 3.82, P = 0.148), even though the average vegetation cover was highest for cows with calves (Table 3; Appendix B).

DISCUSSION

Inventory methods

The stratification of the inventory zones, based on past early winter patterns of habitat use by moose in the Omineca region (Heard et al. 1999*a*), provided an adequate measure of moose distribution in the northern Williston watershed during the 2007 inventory. With a coefficient of variation of 20 % for the total population estimate, we were satisfied the sampling strategy allowed for a reasonable number of surveyed sample units in order to describe the variation among sample units and between high and low moose density strata. By incorporating Demarchi's (2000) estimate as a prior we improved our confidence in the final density estimate by reducing the variance in the posterior, which lowered the coefficient of variation to 14 %.

We observed twice as much variation in the population estimates for S2 relative to S1, which is typical of other moose inventories conducted in the Omineca region using similar sampling and study designs (Heard et al. 1999*b*; Walker et al. 2006*a*; Walker et al. 2006*b*; Walker et al. 2006*c*). This is largely attributed to our sampling design, which results in small sample units and therefore a large number of S2 sample

units (9 of 20), where we found no moose. Zero counts inflate the variance. Larger S2 sample units should be considered for future surveys.

Additional sources of variation in the population estimates were likely attributed to inaccurate stratification because of discrepancies between GIS data and actual forest attributes, in part because the maps are out of date. The time since logging and silviculture treatments have a big impact on the availability and composition of forage species (Eschholz et al. 1996; Thompson and Stewart 1998; Rea and Gillingham 2001) and therefore the distribution and abundance of moose (Nielsen et al. 2005). A more precise population estimate would likely have been obtained with more accurate stratification (e.g. if the SU's with the highest density of moose had all been in S1).

Our resulting mean search effort (4.0 ± 0.35 min/km^2) was considerably greater than the previous northern Williston inventory (2.3 min/km^2 [Demarchi 2000]) but similar to other moose inventories conducted with similar sampling designs, forest cover types and observation crews (e.g. 4.9 ± 0.33 min/km^2 [Walker et al. 2006*c*]). Search effort is a function of transect spacing, flight speed and, because we circle each moose, the number of animals observed (Heard et al. 2001). These are all related to vegetation cover. We suspect the primary reason for the high survey rate was the wider transects (i.e. ~ 500 m) flown during the 2000 inventory. More widely spaced transects were possible because Demarchi's (2000) sample units were more open. We do not think that sightability was substantially different between inventories.

The 2007 study area contained much less area classified as having high moose density (15 % of 1,536 km^2) relative to the northern zone of Demarchi's (2000) inventory (30 % of 2,285 km^2). The 2000 study area was based on ecosystem type and seral stage of the Broad Ecosystem Inventory (BEI). Although there was general agreement between the two classification systems with regards to descriptors, the VRI and FIP data we used provided a finer scale classification of forest cover, resulting in smaller polygon areas than BEI. Demarchi (2000) recommended that finer scale delineation of forest cover types would improve stratification and we found moose were predictably more common in areas we delineated as high density strata using VRI and FIP data. However, discrepancies were common between the maps and actual forest cover. Accurate forest cover maps will become increasingly important for future inventories in

the northern Williston watershed as the amounts of high and low density stratum continually change due to natural disturbance, succession and salvage logging of mountain pine beetle affected trees.

Population size, composition and distribution

There was no indication that the density of moose in the northern Williston watershed has changed since Demarchi's (2000) inventory in February of 2000. Moose populations experiencing predation from both bear species (*Ursus americanus, Ursus arctos*) and wolves (*Canis lupus*) generally exhibit densities below 0.5 animals/km^2 (Messier 1994). Moose in this study area in the northern Williston watershed are subject to wolf and bear predation and human hunting, yet still had a density of 0.56 ± 0.079 moose/km^2. Moose populations like those in the northern Williston watershed, that live in areas with high primary productivity and high natural predation, have been associated with more predictable year-to-year variation in population size. Such populations are more resilient to environmental stochasticity than moose in low productivity environments with little natural predation, like some populations in Newfoundland (Ferguson et al. 2000).

Both the observed and estimated ratios of bulls and calves were greater than the 49 bulls and 18 calves per 100 cows observed in the 2000 inventory (Demarchi 2000). Bull ratios were approximately double the threshold of 30 bulls per 100 cows proposed for moose management in northern BC (Ministry of Environment, Lands and Parks, 1996) and although the observed calf ratios (21 calves per 100 cows) from the northern Williston watershed were low, they provide no indication of a population in decline. The lack of change in moose density over the past 7 years suggests that the population can sustain the human hunting pressure. Given the relatively low calf:cow ratio, and relatively high hunting by both Aboriginal and licensed hunters, we recommend against allowing any increase in licensed hunting.

The absence of sexual segregation by cover was consistent with past inventories in the northern Omineca region (Heard et al. 1999*a*; Walker et al. 2006*a*; Walker et al. 2006*c*) and could not explain the low calf:cow ratios. Our observed ratios of calves and bulls per 100 cows would be biased if moose sexes segregated by cover. Moose tend

to segregate most during winter (Miquelle et al. 1992; Bowyer et al. 2001), with cows and cows with calves using areas of greater cover than bulls during winter. Bowyer et al.'s (2001) assessment, however, did not quantify the amount or juxtaposition of cover around a moose, but qualitatively assessed sites occupied by moose. They hypothesized that female moose were more vulnerable to cursorial predators (i.e., wolves) and that the risk of predation led females to reduce their use of open areas. Miquelle et al. (1992) suggested that segregation in winter results from dimorphism in body size and seasonal patterns of energy expenditure between male and female moose. Males are generally in relatively poor condition during winter and try to maximize energy intake by situating themselves in areas where forage biomass is high; generally more open areas. Although we did not observe the segregation of moose by vegetation cover our results do not conflict with Bowyer et al. (2001) and Miquelle et al. (1992) because techniques differed; our assessment (i.e., aerial estimate of cover within a 9 m radius) was on a much finer scale than that of Bowyer et al. (2001) and did not address issues associated with forage biomass.

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Figure. 1. The study area and the randomly selected sample units surveyed in the northern Williston moose inventory, January 2007. The study area contains the Omineca wildlife management units 7-37 to 7-41.

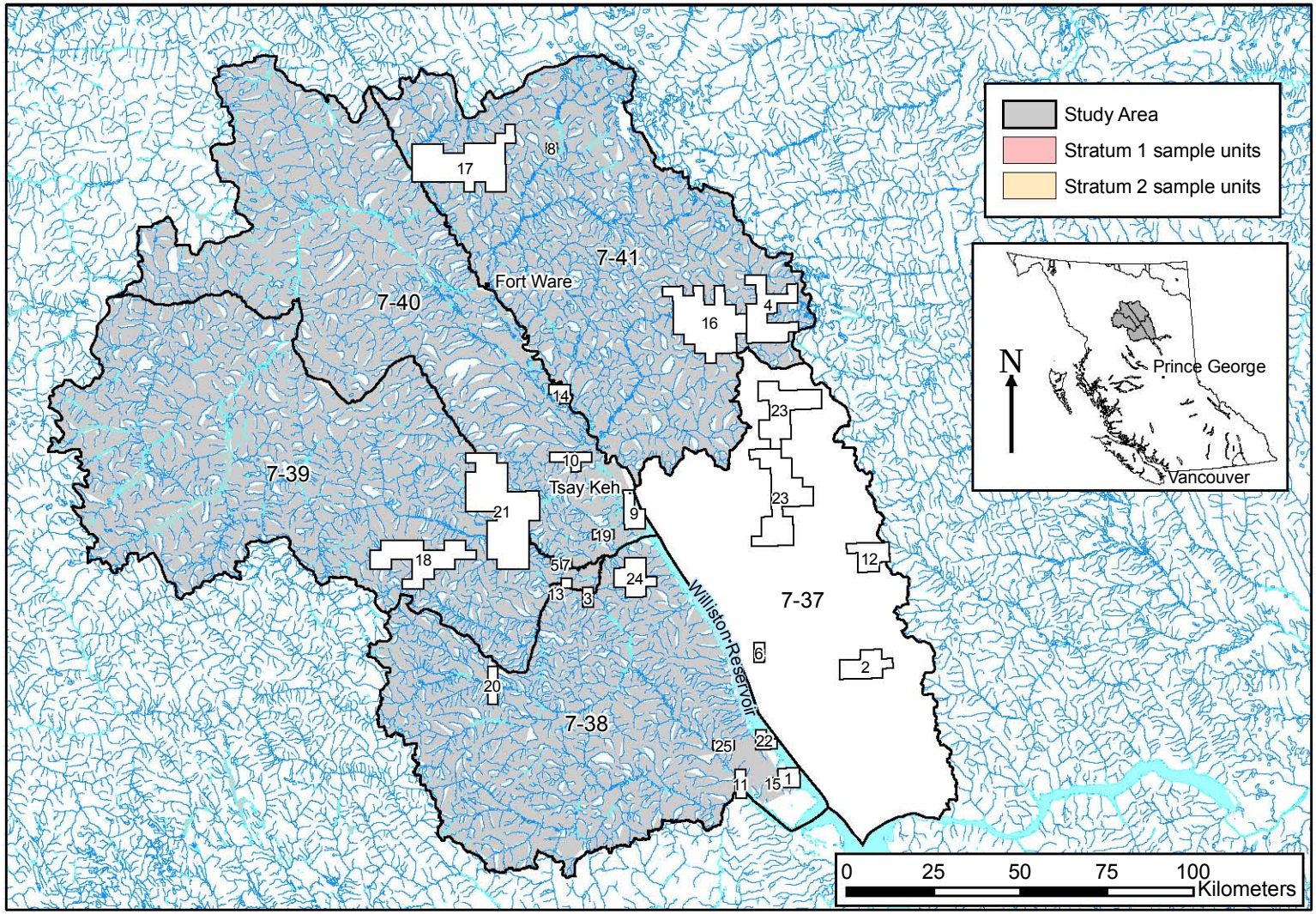

Figure. 2. Distribution of randomly chosen sample units across the low elevation zone (< 1200 m) that was stratified for the northern Williston moose inventory, January 2007.

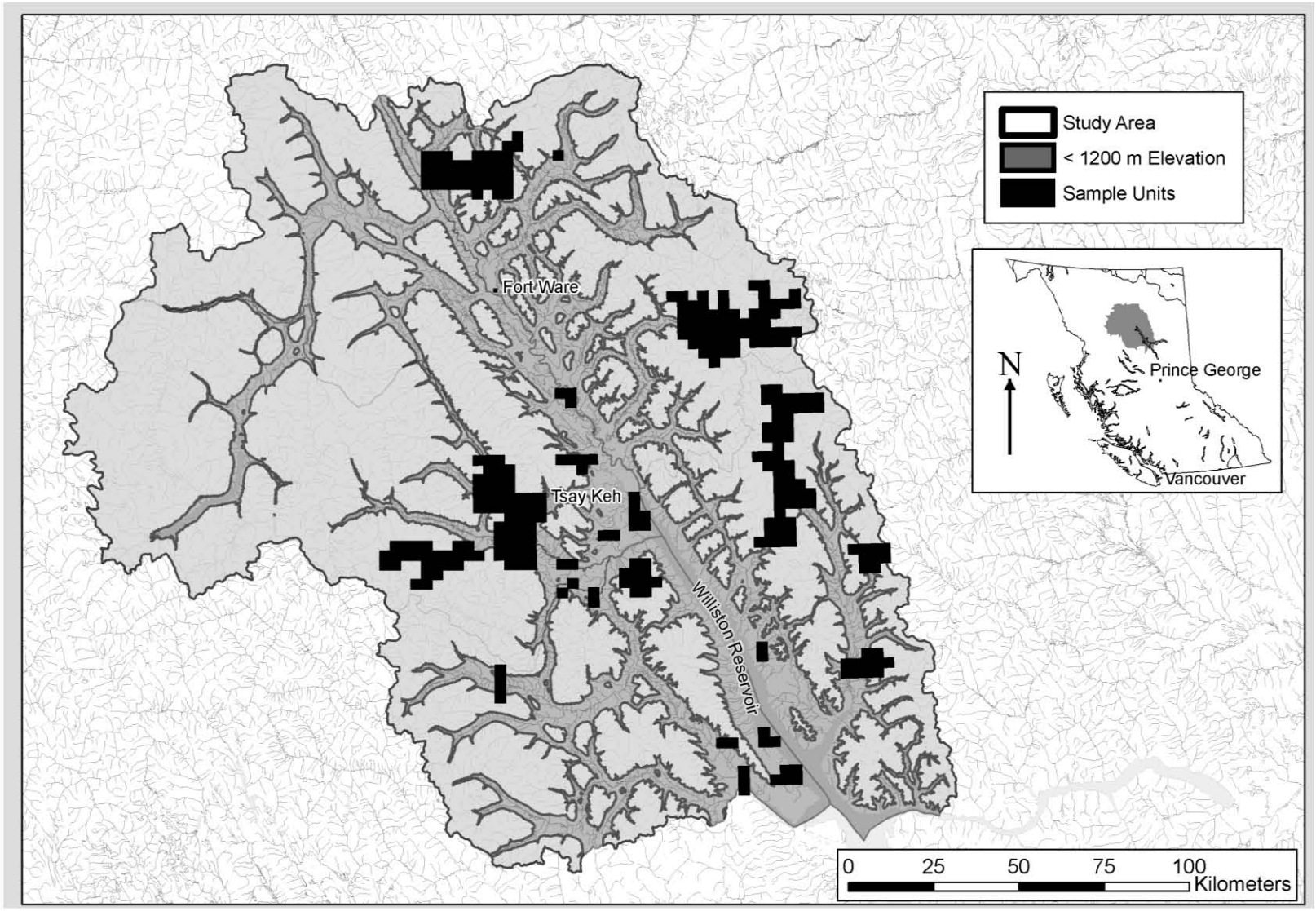

Figure. 3. Typical sample unit (amalgamation of blocks) showing stratification into S1 (high moose density), S2 (low moose density), and non-surveyed areas.

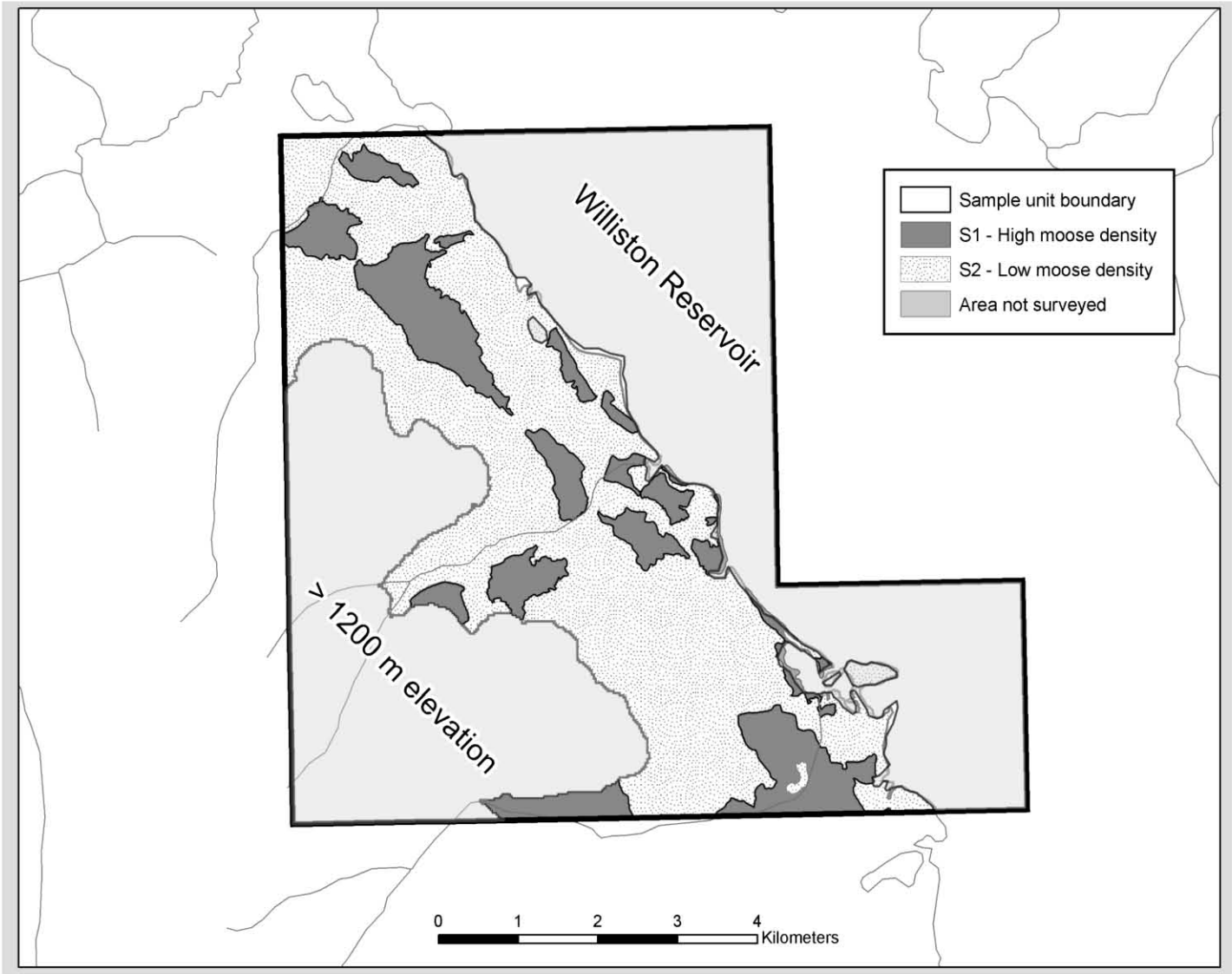

Figure. 4. Probability density functions of the prior (Demarchi 2000), observed (likelihood, Data 2007) and posterior moose densities. The most likely moose density in the northern Williston study area, January 2007, was 0.56 moose/km^2, the peak of the posterior probability density function.

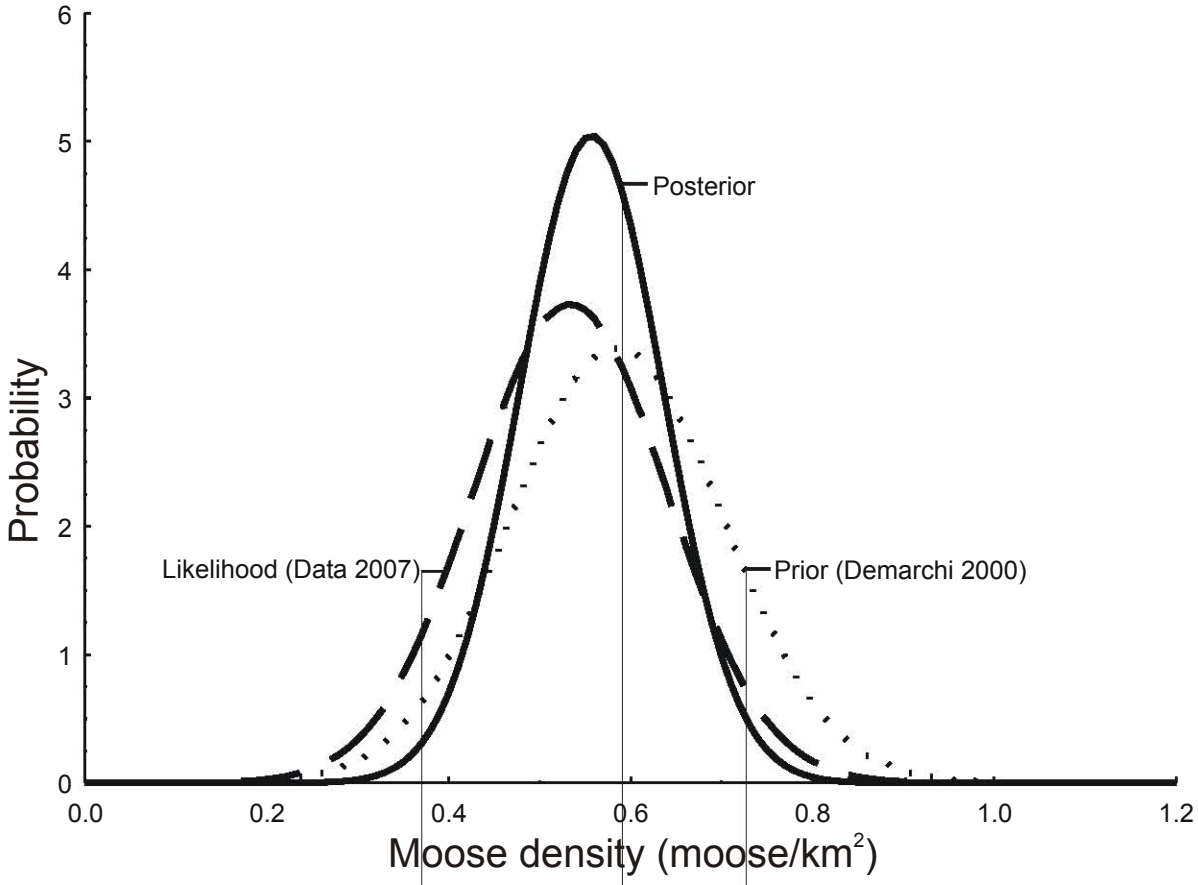

Table 1. Vegetation cover classes, range of vegetation cover (%), detection probability and sightability correction factors, used to extrapolate population estimates of moose in the northern Williston study area, January 2007 (Quayle et al. 2001).

Vegetation Cover Class (VCC)	Vegetation Cover (%)	Detection Probability (DP)[a]	Sightability Correction Factor (SCF)[b]
1	0 - 20	0.958	1.044
2	21 - 40	0.781	1.280
3	41 - 60	0.361	2.770
4	61 - 80	0.082	12.183
5	81 - 100	0.014	71.676

[a]DP = 1/SCF

[b]SCF = 1/((exp(4.9604-1.8437×VCC))/(1+exp(4.9604-1.8437×VCC)))

Table 2. Observed and estimated number of moose by stratum in the northern Williston study area, January 2007.

	Stratum 1	Stratum 2	Total
Moose Observed	150	28	178
Mean Sightability Correction Factor (SCF)	1.12	2.08	1.28
Corrected Number of Moose	167	58	225
Area of Surveyed Sample Units (km^2)	131	143	275
Corrected Density (moose/km^2)	1.28	0.41	0.53
Total Stratum Area (km^2)	1,536	8,843	10,379
No. of Sample Units Surveyed	25	20	45
No. of Sample Units in Stratum	293	1255	1548
Corrected Population Estimate	1,960	3,600	5,500
Sampling Variance	82,067	1,150,018	1,232,085
Sightability Variance	515	1,142	1,657
Model Variance	19	180	199
Total Variance of Population Estimate	82,601	1,151,340	1,233,941
Standard Error of Population Estimate	287	1,070	1,110
Coefficient of Variation of Population Estimate (%)	15	30	20

Table 3. The number (*n*) and percentage of moose groups observed by vegetation cover class and mean vegetation cover ($\bar{x}$ ± SE) in the northern Williston study area, January 2007. Mean vegetation cover did not differ among the moose groups ($\chi^2_{0.1,2}$ = 3.82, *P* = 0.148, Kruskal-Wallis test with tied ranks).

	Vegetation Cover Class (VCC)				Vegetation Cover (%)
	1 *n* (%)	2 *n* (%)	3 *n* (%)	Total *n* (%)	$\bar{x}$ ± SE
Bulls	38 (81 %)	7 (15 %)	2 (4 %)	47 (100 %)	13 ± 1.4
Barren cows	50 (79 %)	9 (14 %)	4 (6 %)	63 (100 %)	15 ± 1.5
Maternal cows	12 (60 %)	6 (30 %)	2 (10 %)	20 (100 %)	19 ± 3.0
Total	100 (77 %)	22 (17 %)	8 (12 %)	130 (100 %)	15 ± 1.0

APPENDIX A. Itinerary and personnel involved in the northern Williston moose inventory, January 2007.

Date	Navigator	Observers	Pilot
08-Jan-07	Glen Watts	Andrew Walker, Doug Heard	Brian Dougherty
09-Jan-07	Glen Watts	Andrew Walker, Doug Heard	Brian Dougherty
10-Jan-07	Glen Watts	Andrew Walker, Doug Heard	Brian Dougherty
11-Jan-07	Glen Watts	Andrew Walker, Travis McIsaac	Brian Dougherty
12-Jan-07	Glen Watts	Andrew Walker, Travis McIsaac	Brian Dougherty

APPENDIX B. Moose observations, vegetation cover and search effort in each sample unit during the northern Williston moose inventory, January 2007.

Sample unit	Waypoints	Date	Stratum	Total	Cows	Calves	Bulls	Unclass.	Veg. cover ($\bar{x}$)	Search time (min)	Area (km^2)	Search effort (min/km^2)
2	11-12	08-Jan-07	1	7	1	0	6	0	8.8	38	5.09	7.47
23	13	09-Jan-07	1	1	0	0	1	0	10.0	57	5.70	10.00
12		09-Jan-07	1	0	0	0	0	0	0.0	23	6.17	1.88*
6	14,16-18, 21-23	09-Jan-07	1	8	3	1	4	0	12.9	36	5.43	6.63
25	24	09-Jan-07	1	2	1	1	0	0	5.0	28	6.04	2.28*
11	26,30	09-Jan-07	1	2	0	0	2	0	15.0	41	5.33	3.19*
15	31	09-Jan-07	1	3	2	1	0	0	12.5	19	5.26	3.62
22	32-33	10-Jan-07	1	3	1	1	1	0	10.0	41	5.34	2.95*
1	34-37	10-Jan-07	1	6	5	1	0	0	28.8	40	4.00	4.21*
20		10-Jan-07	1	0	0	0	0	0	0.0	24	4.49	2.08*
18	39-44	10-Jan-07	1	7	6	1	0	0	25.0	56	5.53	4.58*
21	47-55	10-Jan-07	1	18	6	2	10	0	5.6	48	5.29	3.52*
24	56-62, 64	10-Jan-07	1	9	5	0	4	0	15.6	51	5.93	3.68*
9	67-68, 70-73	11-Jan-07	1	8	3	0	5	0	10.0	65	5.60	4.91*
3	74-78, 80, 82-83	11-Jan-07	1	12	8	1	3	0	8.8	51	4.33	4.70*
13	84-89	11-Jan-07	1	8	4	0	3	1	9.2	31	5.46	5.68
5	90-94	11-Jan-07	1	8	6	2	0	0	19.0	32	6.64	4.82
7	95-106	11-Jan-07	1	15	10	1	4	0	10.0	33	5.57	5.92
19	107-112	11-Jan-07	1	10	7	2	1	0	8.3	40	5.11	3.42*
10		11-Jan-07	1	0	0	0	0	0	0.0	24	4.05	1.92*
8		12-Jan-07	1	0	0	0	0	0	0.0	18	4.91	3.67
17	113-117	12-Jan-07	1	9	4	1	4	0	20.0	51	4.29	4.31*
14	118-119	12-Jan-07	1	3	2	1	0	0	12.5	20	4.77	4.19

Appendix B Continued

Sample unit	Waypoints	Date	Stratum	Total	Cows	Calves	Bulls	Unclass.	Veg. cover ($\bar{x}$)	Search time (min)	Area (km^2)	Search effort (min/km^2)
4	120-125	12-Jan-07	1	7	3	1	3	0	20.0	51	5.58	3.84*
16	126-128	12-Jan-07	1	4	3	1	0	0	11.7	30	5.14	2.78*
2.2		08-Jan-07	2	0	0	0	0	0	0.0	19	8.22	2.31
23.2		09-Jan-07	2	0	0	0	0	0	0.0	8	7.94	1.01
12.2		09-Jan-07	2	0	0	0	0	0	0.0	NA	6.08	NA
6.2	15, 19-20	09-Jan-07	2	7	5	0	2	0	30.0	20	7.38	2.71
25.2	25	09-Jan-07	2	1	0	0	1	0	0.0	NA	6.25	NA
11.2	27-29	09-Jan-07	2	3	1	0	2	0	20.3	NA	7.51	NA
22.2		10-Jan-07	2	0	0	0	0	0	0.0	NA	8.57	NA
1.2		10-Jan-07	2	0	0	0	0	0	0.0	NA	5.49	NA
20.2		10-Jan-07	2	0	0	0	0	0	0.0	NA	7.02	NA
18.2	38	10-Jan-07	2	2	1	1	0	0	40.0	NA	6.69	NA
21.2	45-46	10-Jan-07	2	4	2	1	1	0	37.3	NA	8.35	NA
24.2	63, 65-66	10-Jan-07	2	3	2	0	1	0	11.7	NA	7.91	NA
9.2	69	11-Jan-07	2	1	1	0	0	0	55.0	NA	7.65	NA
3.2	79, 81	11-Jan-07	2	2	1	0	0	1	56.0	NA	6.53	NA
19.2		11-Jan-07	2	0	0	0	0	0	0.0	NA	6.60	NA
10.2		11-Jan-07	2	0	0	0	0	0	0.0	NA	8.42	NA
17.2		12-Jan-07	2	0	0	0	0	0	0.0	NA	7.55	NA
14.2	131	12-Jan-07	2	1	1	0	0	0	5.0	25	6.03	4.15
4.2	NA	12-Jan-07	2	2	0	0	2	0	25.0	NA	7.70	NA
16.2	129-130	12-Jan-07	2	2	1	0	1	0	12.5	NA	5.66	NA

* the search effort for S1 and S2 sample units combined.

From: s.22
To: Zimmerman, Ted FLNR:EX;
Subject: Fw: at least try
Date: Wednesday, November 23, 2011 7:25:48 AM

Sent wirelessly from my BlackBerry device on the Bell network.
Envoyé sans fil par mon terminal mobile BlackBerry sur le réseau de Bell.

From: s.22
Date: Wed, 23 Nov 2011 15:24:32 +0000
To: Doug.Heard@gov.bc.ca<Doug.Heard@gov.bc.ca>
ReplyTo: s.22
Subject: Re: proposed season changes

I don't see how this makes a difference one way or the other to you we request that you at least try. Don't give up so easy good grief. We spoker meeting in the middle so meet us in the middle
Sent wirelessly from my BlackBerry device on the Bell network.
Envoyé sans fil par mon terminal mobile BlackBerry sur le réseau de Bell.

From: "Heard, Douglas FLNR:EX" <Doug.Heard@gov.bc.ca>
Date: Tue, 22 Nov 2011 16:32:42 -0800
To: ' s.22 s.22 'Luke Gleeson'< s.22
Cc: Watts, Glen FLNR:EX<Glen.Watts@gov.bc.ca>; Zimmerman, Ted FLNR:EX<Ted.Zimmerman@gov.bc.ca>
Subject: proposed season changes

Danny,

Based on our meeting this morning and then talking to Ted, we concluded that the overall best season dates would be 15 Aug to 30 Sept and 1 Oct to 5 Nov. We think this is far more likely to receive overall support (especially from Headquarters) and when coupled with an uneven split of permit numbers between the early and late seasons this accomplishes your primary objective of a reduction of hunting during the rut. We will recommend a range of authorisation (ROA) for each management unit that will not constrain the regional manager in the number of permits he puts out in either season in any of the Management Units.

Doug

Doug Heard

Fish & Wildlife Branch
4051 - 18th Avenue
Prince George, British Columbia V2N 1B3
(250) 614-9903

From: Zimmerman, Ted FLNR:EX
To: "Luke Gleeson";
Subject: FW: FW: Letter to accompany LEH draws
Date: Thursday, March 8, 2012 3:46:00 PM

Hi Luke,
I believe this was the version that went out last year. We're open to suggestions on modifying the wording although it will need to be approved by Andrew Wilson, Director of F&W in Victoria. It's a good idea to get started now as it gives us some lead time before the draws occur and letters go out.
Cheers! Ted

Dear Hunter
Your LEH authorisation allows you to hunt on the First Nations traditional territory. If your authorisation is in 729, 737, 738, or 739, you may be within the traditional territory of the Tsay Keh Dene First Nation. If your authorisation is in 740 or 741, you will be within the traditional territory of the Kwadacha First Nation. Before you hunt, please check at the appropriate band office, phone or email, to receive information pertinent to their safety environmental concerns. I you will be hunting in the Tsay Keh Dene traditional territory contact Luke Gleeson in Tsay Keh Dene at (250) 993-2127, in Prince George at (250) 562-8882, or at s.22 The Kwadacha Nation's office numbers are 250 471-2302 or 250 563-4161 or contact the Kwadacha Natural Resources office at 250 471-2044.

From: MacIver, Stephen FLNR:EX
To: Zimmerman, Ted FLNR:EX;
cc: Heard, Douglas FLNR:EX;
Subject: FW: Minister of Environment contact info
Date: Friday, October 23, 2009 1:52:22 PM

FYI

s.13

-----Original Message-----
From: donnyvansomer@kwadacha.com [mailto:donnyvansomer@kwadacha.com]
Sent: Wednesday, October 21, 2009 12:29 PM
To: MacIver, Stephen ENV:EX
Subject: RE: FW: Minister of Environment contact info

>That is great Stephen and I will be at the wildlife meeting in P.G on the 28th to see how we fit in. Donny

Hi Donny, I received the letter a couple of days ago, thanks for the
> response. I will take the letter to my managers here for discussion and
> respond when I have some direction.
>
> Steve
>
> -----Original Message-----
> From: donnyvansomer@kwadacha.com [mailto:donnyvansomer@kwadacha.com]
> Sent: Tuesday, October 20, 2009 1:45 PM
> To: MacIver, Stephen ENV:EX
> Subject: Re: FW: Minister of Environment contact info
>
>>Yes Stephen a letter is on its way to you if you have not already
> recieved it .Donny
>
> Hi Donny, have you had a chance to look over the attached document yet?
>> This is the first draft of the regulation change form for the Motor
>> Vehicle for Hunting Closures.
>>
>>
>>
>> From: MacIver, Stephen ENV:EX
>> Sent: Thursday, August 27, 2009 4:28 PM

>> To: 'donnyvansomer@kwadacha.com'
>> Subject: RE: Minister of Environment contact info
>>
>>
>>
>> Hi Donny, sorry for the delay in responding.
>>
>>
>>
>> Here is the first draft of the "Regulation Change Submission Form" for
>> the Motor Vehicle for Hunting Prohibition. Feel free to chop, edit,
>> comment on or change anything, this is just a first draft.
>>
>>
>>
>> Cheers,
>>
>> Steve
>>
>>
>>
>> -----Original Message-----
>> From: donnyvansomer@kwadacha.com [mailto:donnyvansomer@kwadacha.com]
>> Sent: Thursday, August 6, 2009 8:22 AM
>> To: MacIver, Stephen ENV:EX
>> Subject: RE: Minister of Environment contact info
>>
>>
>>

s.16

s.16

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>>
>>
>> Hi Donny,
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s.13, s.16

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s.13, s.16
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>>>
>>
>>> Regards,
>>
>>> Steve
>>
>>>
>>
>>> -----Original Message-----
>>
>>> From: donnyvansomer@kwadacha.com [mailto:donnyvansomer@kwadacha.com]
>>
>>> Sent: Friday, July 24, 2009 1:17 PM
>>
>>> To: MacIver, Stephen ENV:EX
>>
>>> Subject: Re: Minister of Environment contact info
>>
>>>
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s.16

s.16

>>>
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>>>
>>
>>> Hi Donny, thanks for the meeting the other day, I think it went
> well.
>>
>>>> Here is the email address to write to the Minister about the higher
>>
>>>> level issues: env.minister@gov.bc.ca.
>>
>>>>
>>

s.13, s.16

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>>>> Cheers,
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>>>> Steve
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From: Zimmerman, Ted FLNR:EX
To: Heard, Douglas FLNR:EX;
Subject: FW: Resident Hunting Data
Date: Monday, January 17, 2011 2:45:54 PM

Doug, could you compile what info we have available and send on to Luke please? Thx. TZ

From: Luke Gleeson [mailto: s.22
Sent: Tuesday, January 4, 2011 3:50 PM
To: Zimmerman, Ted ENV:EX
Subject: Resident Hunting Data

Hi Ted,

Do you have the resident hunter data for the fall of 2010 yet? It would be great to get all the information(numbers) on the amount of LEHs that were given out and where they were sent, as well as the number of hunters that entered our territory. Could you also give me the numbers of animals harvested(species, gender, etc...) and the MU in which the harvesting took place? The MUs of interest to the Tsay Keh Dene Band would be 7-29, 7-38, 7-39, 7-40, 7-41, and 7-37. If you are not the person to contact on this matter then it would be greatly appreciated if you could forward me to someone who could.

Thank you,

Luke Gleeson
Fish and Wildlife

Tsay Keh Dene Band
Prince George: (250) 562-8882
Tsay Keh Dene: (250) 993-2177
Treaty Office: (250) 993-2127
Cell: s.22
s.22

Pages 56 through 57 redacted for the following reasons:
- -
s.13, s.16

INGENIKA MOOSE SURVEY JANUARY 2007

	S1		N	293					AREAS	C*C
	HIGH		**Z**	**1536**					WITH	WITH
	su	count	area	c*c	a*a	c*a	d		COUNT>0	COUNT>0
1	13	6	5.09	36	25.9	30.54	1.2		5.09	36
2	116	7	5.70	49	32.5	39.89	1.2		5.69875	49
3	163	12	6.17	144	38.1	74.09	1.9		6.17375	144
4	219	7	5.43	49	29.4	37.98	1.3		5.42625	49
5	149	8	6.04	64	36.5	48.32	1.3		6.04	64
6	109	8	5.33	64	28.4	42.67	1.5		5.33375	64
7	150	15	5.26	225	27.6	78.83	2.9		5.255625	225
8	291	0	5.34	0	28.6	0	0.0		5.34375	0
9	196	8	4.00	64	16	32.01	2.0		4.00125	64
10	208	0	4.49	0	20.1	0	0.0		4.488125	0
11	18	2	5.53	4	30.6	11.07	0.4		5.534375	4
12	120	0	5.29	0	28	0	0.0		5.2875	0
13	138	8	5.93	64	35.2	47.45	1.3		5.93125	64
14	224	3	5.60	9	31.4	16.8	0.5		5.600625	9
15	14	3	4.33	9	18.7	12.98	0.7		4.32625	9
16	220	4	5.46	16	29.8	21.83	0.7		5.458125	16
17	264	9	6.64	81	44.1	59.79	1.4		6.643125	81
18	153	7	5.57	49	31.1	39.02	1.3		5.574375	49
19	195	10	5.11	100	26.1	51.12	2.0		5.111875	100
20	130	0	4.05	0	16.4	0	0.0		4.048125	0
21	157	18	4.91	324	24.1	88.29	3.7		4.905	324
22	72	3	4.29	9	18.4	12.86	0.7		4.285625	9
23	175	1	4.77	1	22.8	4.77	0.2		4.77	1
24	169	9	5.58	81	31.1	50.18	1.6		5.575	81
25	30	2	5.14	4	26.4	10.29	0.4		5.1425	4
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
SUMS		150							131.05	1446.00

sums	150	131.05	1446	697	810.8
vars	22.750	0.432			
n	**25**				
density	1.14				
varca	1.0209				
var EST	65893				
est	**1758**				
SE	257				

CV	0.146

mean scf	1.116

CORR EST	1962
CORR SAMPLE VAR	82067
MOD VAR	19
SIGHT VAR	515
CORR CV	0.146

A*A WITH COUNT>0	C*A WITH COUNT>0		S2 LOW	N Z	1255 8843			
			su	count	area	c*c	a*a	
25.9081	30.54	1	13	0	8.2	0	67.64	
32.47575	39.89125	2	116	0	7.9	0	63.04	
38.11519	74.085	3	163	2	6.1	4	36.93	
29.44419	37.98375	4	219	2	7.4	4	54.42	
36.4816	48.32	6	109	7	6.3	49	39.09	
28.44889	42.67	9	196	1	7.5	1	56.37	
27.62159	78.83438	10	208	0	8.6	0	73.50	
28.55566	0	11	18	3	5.5	9	30.14	
16.01	32.01	12	120	0	7.0	0	49.32	
20.14327	0	14	224	1	6.7	1	44.76	
30.62931	11.06875	16	220	2	8.4	4	69.72	
27.95766	0	17	264	0	7.9	0	62.55	
35.17973	47.45	18	153	2	7.6	4	58.51	
31.367	16.80188	19	195	0	6.5	0	42.62	
18.71644	12.97875	20	130	0	6.6	0	43.52	
29.79113	21.8325	21	157	4	8.4	16	70.93	
44.13111	59.78813	22	72	0	7.5	0	56.97	
31.07366	39.02063	23	175	0	6.0	0	36.38	
26.13127	51.11875	24	169	3	7.7	9	59.25	
16.38732	0	25	30	1	5.7	1	32.09	
24.05903	88.29							
18.36658	12.85688							
22.7529	4.77							
31.08063	50.175							
26.44531	10.285							

697.27	810.77	28		

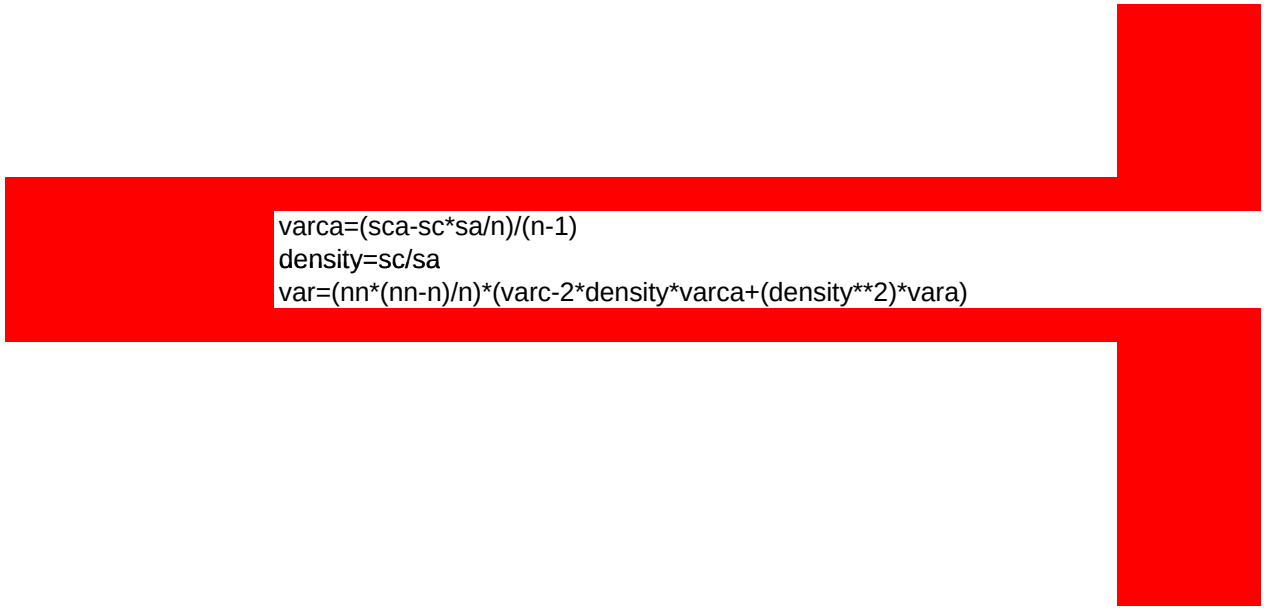
sums	28	143.55	102.00	1047.75
vars	3.305	0.916		
n	**20**			
density	0.20			
varca	-0.27292			
var EST	267097			

est	**1725**
SE	516.81389

CV	0.300

SIGHTABILITY CORRECTION

mean scf	2.075
CORR EST	3579
CORR SAMPLE VAR	1150018
MOD VAR	180
SIGHT VAR	1142
CORR CV	0.300



varca=(sca-sc*sa/n)/(n-1)
density=sc/sa
var=(nn*(nn-n)/n)*(varc-2*density*varca+(density**2)*vara)

c*a	d		AREAS WITH COUNT>0	C*C WITH COUNT	A*A WITH COUNT>0	C*A WITH COUNT>0
0		0.0	8.224375	0	67.64034	0
0		0.0	7.94	0	63.0436	0
12.15375		0.3	6.08	4	36.92841	12.15375
14.75375		0.3	7.38	4	54.41828	14.75375
43.7675		1.1	6.25	49	39.09376	43.7675
7.508125		0.1	7.51	1	56.37194	7.508125
0		0.0	8.57	0	73.49847	0
16.47		0.5	5.49	9	30.1401	16.47
0		0.0	7.02	0	49.32428	0
6.69		0.1	6.69	1	44.7561	6.69
16.7		0.2	8.35	4	69.7225	16.7
0		0.0	7.91	0	62.54833	0
15.29875		0.3	7.65	4	58.51294	15.29875
0		0.0	6.53	0	42.61642	0
0		0.0	6.60	0	43.51876	0
33.6875		0.5	8.42	16	70.92798	33.6875
0		0.0	7.55	0	56.97419	0
0		0.0	6.03	0	36.37598	0
23.0925		0.4	7.70	9	59.25151	23.0925
5.664375		0.2	5.66	1	32.08514	5.664375
			143.55	102.00	1047.75	195.79

195.79

OVERALL

est	**3483**
VAR	**332990**
SE	**577.05**
CV	**0.17**

SIGHTABILITY CORRECTION
FINAL POPULATION ESTIMATE

CORR EST	**5541**
CORR VAR	**1233941**
CORR CV	**0.20**

FLIGHT ORDER	Subunit	Stratum	Total	Cows	Calves	Yr Bulls	Ad Bulls	Unclass	Snow	Veg
1	100002	1	2	1	0	0	1	0	100	10
1	100002	1	2	0	0	0	2	0	100	10
1	100002	1	2	0	0	0	2	0	100	10
1	100002	1	1	0	0	0	1	0	100	5
2	100002.2	2	0	0	0	0	0	0	100	
3	100023	1	1	0	0	0	1	0	100	10
4	100023.2	2	0	0	0	0	0	0	100	
5	100012	1	0	0	0	0	0	0	100	
6	100012.2	2	0	0	0	0	0	0	100	
7	100006	1	1	0	0	0	1	0	100	25
7	100006	1	1	1	0	0	0	0	100	10
7	100006	1	1	1	0	0	0	0	100	10
7	100006	1	1	0	0	0	1	0	100	10
7	100006	1	1	0	0	0	1	0	100	15
7	100006	1	2	1	1	0	0	0	100	10
7	100006	1	1	0	0	0	1	0	100	10
8	100006.2	2	1	1	0	0	0	0	100	40
8	100006.2	2	3	3	0	0	0	0	100	50
8	100006.2	2	2	1	0	0	1	0	100	10
8	100006.2	2	1	0	0	0	1	0	100	20
9	100025	1	2	1	1	0	0	0	100	5
10	100025.2	2	1	0	0	0	1	0	100	0
11	100011	1	1	0	0	0	1	0	100	25
11	100011	1	1	0	0	0	1	0	100	5
12	100011.2	2	1	0	0	0	1	0	100	41
12	100011.2	2	1	1	0	0	0	0	100	10
12	100011.2	2	1	0	0	0	1	0	100	10
13	100015	1	2	1	1	0	0	0	100	15
13	100015	1	1	1	0	0	0	0	100	10
14	100022	1	2	1	1	0	0	0	100	10
14	100022	1	1	0	0	0	1	0	100	10
15	100022.2	2	0	0	0	0	0	0	100	
16	100001	1	1	1	0	0	0	0	100	30
16	100001	1	1	1	0	0	0	0	100	30
16	100001	1	2	1	1	0	0	0	100	30
16	100001	1	2	2	0	0	0	0	100	25
17	100001.2	2	0	0	0	0	0	0	100	
18	100020	1	0	0	0	0	0	0	100	
19	100020.2	2	0	0	0	0	0	0	100	
20	100018	1	2	1	1	0	0	0	100	50
20	100018	1	1	1	0	0	0	0	100	50
20	100018	1	1	1	0	0	0	0	100	15
20	100018	1	1	1	0	0	0	0	100	10
20	100018	1	1	1	0	0	0	0	100	10
20	100018	1	1	1	0	0	0	0	100	15
21	100018.2	2	2	1	1	0	0	0	100	40
22	100021	1	2	1	1	0	0	0	100	5
22	100021	1	4	0	0	0	4	0	100	5
22	100021	1	1	1	0	0	0	0	100	10
22	100021	1	3	2	1	0	0	0	100	5
22	100021	1	1	1	0	0	0	0	100	5

22	100021	1	3	0	0	0	3	0	100	5
22	100021	1	2	1	0	0	1	0	100	5
22	100021	1	1	0	0	0	1	0	100	5
22	100021	1	1	0	0	0	1	0	100	5
23	100021.2	2	1	0	0	0	1	0	100	45
23	100021.2	2	1	1	0	0	0	0	100	25
23	100021.2	2	2	1	1	0	0	0	100	42
24	100024	1	2	0	0	0	2	0	100	10
24	100024	1	2	2	0	0	0	0	100	5
24	100024	1	1	0	0	0	1	0	100	29
24	100024	1	1	1	0	0	0	0	100	10
24	100024	1	1	1	0	0	0	0	100	15
24	100024	1	1	0	0	0	1	0	100	15
24	100024	1	1	1	0	0	0	0	100	25
25	100024.2	2	1	1	0	0	0	0	100	15
25	100024.2	2	1	0	0	0	1	0	100	5
25	100024.2	2	1	1	0	0	0	0	100	15
26	100009	1	1	0	0	0	1	0	100	5
26	100009	1	2	0	0	0	2	0	100	5
26	100009	1	1	0	0	0	1	0	100	15
26	100009	1	1	0	0	0	1	0	100	10
26	100009	1	2	2	0	0	0	0	100	15
26	100009	1	1	1	0	0	0	0	100	10
27	100009.2	2	1	1	0	0	0	0	100	55
28	100003	1	1	1	0	0	0	0	100	5
28	100003	1	1	1	0	0	0	0	100	10
28	100003	1	1	1	0	0	0	0	100	10
28	100003	1	2	1	1	0	0	0	100	10
28	100003	1	1	1	0	0	0	0	100	10
28	100003	1	4	2	0	0	2	0	100	10
28	100003	1	1	1	0	0	0	0	100	5
28	100003	1	1	0	0	0	1	0	100	10
28	100003.2	2	1	0	0	0	0	1	100	62
29	100003.2	2	1	1	0	0	0	0	100	50
30	100013	1	3	2	0	0	0	1	100	10
30	100013	1	1	0	0	0	1	0	100	10
30	100013	1	1	1	0	0	0	0	100	10
30	100013	1	1	1	0	0	0	0	100	10
30	100013	1	1	0	0	0	1	0	100	10
30	100013	1	1	0	0	0	1	0	100	5
31	100005	1	2	1	1	0	0	0	100	25
31	100005	1	1	1	0	0	0	0	100	5
31	100005	1	2	2	0	0	0	0	100	15
31	100005	1	2	1	1	0	0	0	100	25
31	100005	1	1	1	0	0	0	0	100	25
32	100007	1	1	1	0	0	0	0	100	10
32	100007	1	1	0	0	0	1	0	100	10
32	100007	1	1	1	0	0	0	0	100	10
32	100007	1	2	1	1	0	0	0	100	25
32	100007	1	1	0	0	0	1	0	100	5
32	100007	1	2	0	0	0	2	0	100	10
32	100007	1	1	1	0	0	0	0	100	5

32	100007	1	1	1	0	0	0	0	100	5
32	100007	1	1	1	0	0	0	0	100	5
32	100007	1	1	1	0	0	0	0	100	15
32	100007	1	2	2	0	0	0	0	100	5
32	100007	1	1	1	0	0	0	0	100	15
33	100019	1	2	2	0	0	0	0	100	5
33	100019	1	2	2	0	0	0	0	100	10
33	100019	1	2	1	1	0	0	0	100	5
33	100019	1	1	1	0	0	0	0	100	10
33	100019	1	2	1	1	0	0	0	100	10
33	100019	1	1	0	0	0	1	0	100	10
34	100019.2	2	0	0	0	0	0	0	100	
35	100010	1	0	0	0	0	0	0	100	
36	100010.2	2	0	0	0	0	0	0	100	
37	100008	1	0	0	0	0	0	0	100	
39	100017	1	2	2	0	0	0	0	100	15
39	100017	1	2	1	1	0	0	0	100	25
39	100017	1	2	0	0	0	2	0	100	25
39	100017	1	1	1	0	0	0	0	100	15
39	100017	1	2	0	0	0	2	0	100	20
40	100017.2	2	0	0	0	0	0	0	100	
41	100014	1	1	1	0	0	0	0	100	5
41	100014	1	2	1	1	0	0	0	100	20
42	100014.2	2	1	1	0	0	0	0	100	5
43	100004	1	1	0	0	0	1	0	100	25
43	100004	1	1	0	0	0	1	0	100	25
43	100004	1	1	1	0	0	0	0	100	35
43	100004	1	1	1	0	0	0	0	100	15
43	100004	1	1	0	0	0	1	0	100	10
43	100004	1	2	1	1	0	0	0	100	10
44	100004.2	2	2	0	0	0	2	0	100	25
45	100016	1	1	1	0	0	0	0	100	5
45	100016	1	2	1	1	0	0	0	100	15
45	100016	1	1	1	0	0	0	0	100	15
46	100016.2	2	1	0	0	0	1	0	100	0
46	100016.2	2	1	1	0	0	0	0	100	25

VCC	SCF	corTOTAL	corcow	corcvs	corbulls	corunclass	SCF
1	1.044	2.09	1.04	0	1.044	0	
1	1.044	2.09	0.00	0	2.088	0	
1	1.044	2.09	0.00	0	2.088	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	0.00	0.00	0	0	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	0.00	0.00	0	0	0	
1	1.044	0.00	0.00	0	0	0	
1	1.044	0.00	0.00	0	0	0	
2	1.280	1.28	0.00	0	1.28	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	2.09	1.04	1.044	0	0	
1	1.044	1.04	0.00	0	1.044	0	
2	1.280	1.28	1.28	0	0	0	
3	2.770	8.31	8.31	0	0	0	
1	1.044	2.09	1.04	0	1.044	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	2.09	1.04	1.044	0	0	
1	1.044	1.04	0.00	0	1.044	0	
2	1.280	1.28	0.00	0	1.28	0	
1	1.044	1.04	0.00	0	1.044	0	
3	2.770	2.77	0.00	0	2.77	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	2.09	1.04	1.044	0	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	2.09	1.04	1.044	0	0	
1	1.044	1.04	0.00	0	1.044	0	
1	1.044	0.00	0.00	0	0	0	
2	1.280	1.28	1.28	0	0	0	
2	1.280	1.28	1.28	0	0	0	
2	1.280	2.56	1.28	1.28	0	0	
2	1.280	2.56	2.56	0	0	0	
1	1.044	0.00	0.00	0	0	0	
1	1.044	0.00	0.00	0	0	0	
1	1.044	0.00	0.00	0	0	0	
3	2.770	5.54	2.77	2.77	0	0	
3	2.770	2.77	2.77	0	0	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	1.04	1.04	0	0	0	
2	1.280	2.56	1.28	1.28	0	0	
1	1.044	2.09	1.04	1.044	0	0	
1	1.044	4.18	0.00	0	4.176	0	
1	1.044	1.04	1.04	0	0	0	
1	1.044	3.13	2.09	1.044	0	0	
1	1.044	1.04	1.04	0	0	0	

1	1.044	3.13	0.00	0	3.132	0
1	1.044	2.09	1.04	0	1.044	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	1.04	0.00	0	1.044	0
3	2.770	2.77	0.00	0	2.77	0
2	1.280	1.28	1.28	0	0	0
3	2.770	5.54	2.77	2.77	0	0
1	1.044	2.09	0.00	0	2.088	0
1	1.044	2.09	2.09	0	0	0
2	1.280	1.28	0.00	0	1.28	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
2	1.280	1.28	1.28	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	2.09	0.00	0	2.088	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	2.09	2.09	0	0	0
1	1.044	1.04	1.04	0	0	0
3	2.770	2.77	2.77	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	1.04	1.044	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	4.18	2.09	0	2.088	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
4	12.183	12.18	0.00	0	0	12.183
3	2.770	2.77	2.77	0	0	0
1	1.044	3.13	2.09	0	0	1.044
1	1.044	1.04	0.00	0	1.044	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	1.04	0.00	0	1.044	0
2	1.280	2.56	1.28	1.28	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	2.09	0	0	0
2	1.280	2.56	1.28	1.28	0	0
2	1.280	1.28	1.28	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	1.04	1.04	0	0	0
2	1.280	2.56	1.28	1.28	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	2.09	0.00	0	2.088	0
1	1.044	1.04	1.04	0	0	0

1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	2.09	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	2.09	0	0	0
1	1.044	2.09	2.09	0	0	0
1	1.044	2.09	1.04	1.044	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	1.04	1.044	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	0.00	0.00	0	0	0
1	1.044	0.00	0.00	0	0	0
1	1.044	0.00	0.00	0	0	0
1	1.044	0.00	0.00	0	0	0
1	1.044	2.09	2.09	0	0	0
2	1.280	2.56	1.28	1.28	0	0
2	1.280	2.56	0.00	0	2.56	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	0.00	0	2.088	0
1	1.044	0.00	0.00	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	1.04	1.044	0	0
1	1.044	1.04	1.04	0	0	0
2	1.280	1.28	0.00	0	1.28	0
2	1.280	1.28	0.00	0	1.28	0
2	1.280	1.28	1.28	0	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
1	1.044	2.09	1.04	1.044	0	0
2	1.280	2.56	0.00	0	2.56	0
1	1.044	1.04	1.04	0	0	0
1	1.044	2.09	1.04	1.044	0	0
1	1.044	1.04	1.04	0	0	0
1	1.044	1.04	0.00	0	1.044	0
2	1.280	1.28	1.28	0	0	0

Record	FLIGHT ORDER	Subunit	Stratum	Total	Cows	Calves	Yr Bulls	Ad Bulls	Unclass
1	1	100002	1	2	1	0	0	1	0
2	1	100002	1	2	0	0	0	2	0
3	1	100002	1	2	0	0	0	2	0
4	1	100002	1	1	0	0	0	1	0
6	3	100023	1	1	0	0	0	1	0
10	7	100006	1	1	0	0	0	1	0
11	7	100006	1	1	1	0	0	0	0
12	7	100006	1	1	1	0	0	0	0
13	7	100006	1	1	0	0	0	1	0
14	7	100006	1	1	0	0	0	1	0
15	7	100006	1	2	1	1	0	0	0
16	7	100006	1	1	0	0	0	1	0
21	9	100025	1	2	1	1	0	0	0
23	11	100011	1	1	0	0	0	1	0
24	11	100011	1	1	0	0	0	1	0
28	13	100015	1	2	1	1	0	0	0
29	13	100015	1	1	1	0	0	0	0
30	14	100022	1	2	1	1	0	0	0
31	14	100022	1	1	0	0	0	1	0
33	16	100001	1	1	1	0	0	0	0
34	16	100001	1	1	1	0	0	0	0
35	16	100001	1	2	1	1	0	0	0
36	16	100001	1	2	2	0	0	0	0
40	20	100018	1	2	1	1	0	0	0
41	20	100018	1	1	1	0	0	0	0
42	20	100018	1	1	1	0	0	0	0
43	20	100018	1	1	1	0	0	0	0
44	20	100018	1	1	1	0	0	0	0
45	20	100018	1	1	1	0	0	0	0
47	22	100021	1	2	1	1	0	0	0
48	22	100021	1	4	0	0	0	4	0
49	22	100021	1	1	1	0	0	0	0
50	22	100021	1	3	2	1	0	0	0
51	22	100021	1	1	1	0	0	0	0
52	22	100021	1	3	0	0	0	3	0
53	22	100021	1	2	1	0	0	1	0
54	22	100021	1	1	0	0	0	1	0
55	22	100021	1	1	0	0	0	1	0
59	24	100024	1	2	0	0	0	2	0
60	24	100024	1	2	2	0	0	0	0
61	24	100024	1	1	0	0	0	1	0
62	24	100024	1	1	1	0	0	0	0
63	24	100024	1	1	1	0	0	0	0
64	24	100024	1	1	0	0	0	1	0
65	24	100024	1	1	1	0	0	0	0
69	26	100009	1	1	0	0	0	1	0
70	26	100009	1	2	0	0	0	2	0
71	26	100009	1	1	0	0	0	1	0
72	26	100009	1	1	0	0	0	1	0
73	26	100009	1	2	2	0	0	0	0
74	26	100009	1	1	1	0	0	0	0

76	28	100003	1	1	1	0	0	0	0
77	28	100003	1	1	1	0	0	0	0
78	28	100003	1	1	1	0	0	0	0
79	28	100003	1	2	1	1	0	0	0
80	28	100003	1	1	1	0	0	0	0
81	28	100003	1	4	2	0	0	2	0
82	28	100003	1	1	1	0	0	0	0
83	28	100003	1	1	0	0	0	1	0
86	30	100013	1	3	2	0	0	0	1
87	30	100013	1	1	0	0	0	1	0
88	30	100013	1	1	1	0	0	0	0
89	30	100013	1	1	1	0	0	0	0
90	30	100013	1	1	0	0	0	1	0
91	30	100013	1	1	0	0	0	1	0
92	31	100005	1	2	1	1	0	0	0
93	31	100005	1	1	1	0	0	0	0
94	31	100005	1	2	2	0	0	0	0
95	31	100005	1	2	1	1	0	0	0
96	31	100005	1	1	1	0	0	0	0
97	32	100007	1	1	1	0	0	0	0
98	32	100007	1	1	0	0	0	1	0
99	32	100007	1	1	1	0	0	0	0
100	32	100007	1	2	1	1	0	0	0
101	32	100007	1	1	0	0	0	1	0
102	32	100007	1	2	0	0	0	2	0
103	32	100007	1	1	1	0	0	0	0
104	32	100007	1	1	1	0	0	0	0
105	32	100007	1	1	1	0	0	0	0
106	32	100007	1	1	1	0	0	0	0
107	32	100007	1	2	2	0	0	0	0
108	32	100007	1	1	1	0	0	0	0
109	33	100019	1	2	2	0	0	0	0
110	33	100019	1	2	2	0	0	0	0
111	33	100019	1	2	1	1	0	0	0
112	33	100019	1	1	1	0	0	0	0
113	33	100019	1	2	1	1	0	0	0
114	33	100019	1	1	0	0	0	1	0
120	39	100017	1	2	2	0	0	0	0
121	39	100017	1	2	1	1	0	0	0
122	39	100017	1	2	0	0	0	2	0
123	39	100017	1	1	1	0	0	0	0
124	39	100017	1	2	0	0	0	2	0
126	41	100014	1	1	1	0	0	0	0
127	41	100014	1	2	1	1	0	0	0
129	43	100004	1	1	0	0	0	1	0
130	43	100004	1	1	0	0	0	1	0
131	43	100004	1	1	1	0	0	0	0
132	43	100004	1	1	1	0	0	0	0
133	43	100004	1	1	0	0	0	1	0
134	43	100004	1	2	1	1	0	0	0
136	45	100016	1	1	1	0	0	0	0
137	45	100016	1	2	1	1	0	0	0

138	45	100016	1	1	1	0	0	0	0
17	8	100006.2	2	1	1	0	0	0	0
18	8	100006.2	2	3	3	0	0	0	0
19	8	100006.2	2	2	1	0	0	1	0
20	8	100006.2	2	1	0	0	0	1	0
22	10	100025.2	2	1	0	0	0	1	0
25	12	100011.2	2	1	0	0	0	1	0
26	12	100011.2	2	1	1	0	0	0	0
27	12	100011.2	2	1	0	0	0	1	0
46	21	100018.2	2	2	1	1	0	0	0
56	23	100021.2	2	1	0	0	0	1	0
57	23	100021.2	2	1	1	0	0	0	0
58	23	100021.2	2	2	1	1	0	0	0
66	25	100024.2	2	1	1	0	0	0	0
67	25	100024.2	2	1	0	0	0	1	0
68	25	100024.2	2	1	1	0	0	0	0
75	27	100009.2	2	1	1	0	0	0	0
84	28	100003.2	2	1	0	0	0	0	1
85	29	100003.2	2	1	1	0	0	0	0
128	42	100014.2	2	1	1	0	0	0	0
135	44	100004.2	2	2	0	0	0	2	0
139	46	100016.2	2	1	0	0	0	1	0
140	46	100016.2	2	1	1	0	0	0	0

Snow	Veg	VCC	SCF	corTOTAL	corcow	corcvs	corbulls	corunclass	SCF
100	10	1	1.044	2.09	1.04	0	1.044	0	
100	10	1	1.044	2.09	0.00	0	2.088	0	
100	10	1	1.044	2.09	0.00	0	2.088	0	
100	5	1	1.044	1.04	0.00	0	1.044	0	
100	10	1	1.044	1.04	0.00	0	1.044	0	
100	25	2	1.280	1.28	0.00	0	1.28	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	10	1	1.044	1.04	0.00	0	1.044	0	
100	15	1	1.044	1.04	0.00	0	1.044	0	
100	10	1	1.044	2.09	1.04	1.044	0	0	
100	10	1	1.044	1.04	0.00	0	1.044	0	
100	5	1	1.044	2.09	1.04	1.044	0	0	
100	25	2	1.280	1.28	0.00	0	1.28	0	
100	5	1	1.044	1.04	0.00	0	1.044	0	
100	15	1	1.044	2.09	1.04	1.044	0	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	10	1	1.044	2.09	1.04	1.044	0	0	
100	10	1	1.044	1.04	0.00	0	1.044	0	
100	30	2	1.280	1.28	1.28	0	0	0	
100	30	2	1.280	1.28	1.28	0	0	0	
100	30	2	1.280	2.56	1.28	1.28	0	0	
100	25	2	1.280	2.56	2.56	0	0	0	
100	50	3	2.770	5.54	2.77	2.77	0	0	
100	50	3	2.770	2.77	2.77	0	0	0	
100	15	1	1.044	1.04	1.04	0	0	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	15	1	1.044	1.04	1.04	0	0	0	
100	5	1	1.044	2.09	1.04	1.044	0	0	
100	5	1	1.044	4.18	0.00	0	4.176	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	5	1	1.044	3.13	2.09	1.044	0	0	
100	5	1	1.044	1.04	1.04	0	0	0	
100	5	1	1.044	3.13	0.00	0	3.132	0	
100	5	1	1.044	2.09	1.04	0	1.044	0	
100	5	1	1.044	1.04	0.00	0	1.044	0	
100	5	1	1.044	1.04	0.00	0	1.044	0	
100	10	1	1.044	2.09	0.00	0	2.088	0	
100	5	1	1.044	2.09	2.09	0	0	0	
100	29	2	1.280	1.28	0.00	0	1.28	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	15	1	1.044	1.04	1.04	0	0	0	
100	15	1	1.044	1.04	0.00	0	1.044	0	
100	25	2	1.280	1.28	1.28	0	0	0	
100	5	1	1.044	1.04	0.00	0	1.044	0	
100	5	1	1.044	2.09	0.00	0	2.088	0	
100	15	1	1.044	1.04	0.00	0	1.044	0	
100	10	1	1.044	1.04	0.00	0	1.044	0	
100	15	1	1.044	2.09	2.09	0	0	0	
100	10	1	1.044	1.04	1.04	0	0	0	

100	5	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	2.09	1.04	1.044	0	0
100	10	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	4.18	2.09	0	2.088	0
100	5	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	0.00	0	1.044	0
100	10	1	1.044	3.13	2.09	0	0	1.044
100	10	1	1.044	1.04	0.00	0	1.044	0
100	10	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	0.00	0	1.044	0
100	5	1	1.044	1.04	0.00	0	1.044	0
100	25	2	1.280	2.56	1.28	1.28	0	0
100	5	1	1.044	1.04	1.04	0	0	0
100	15	1	1.044	2.09	2.09	0	0	0
100	25	2	1.280	2.56	1.28	1.28	0	0
100	25	2	1.280	1.28	1.28	0	0	0
100	10	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	0.00	0	1.044	0
100	10	1	1.044	1.04	1.04	0	0	0
100	25	2	1.280	2.56	1.28	1.28	0	0
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100	10	1	1.044	1.04	0.00	0	1.044	0
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100	15	1	1.044	1.04	1.04	0	0	0
100	20	1	1.044	2.09	0.00	0	2.088	0
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100	20	1	1.044	2.09	1.04	1.044	0	0
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100	15	1	1.044	1.04	1.04	0	0	0
100	10	1	1.044	1.04	0.00	0	1.044	0
100	10	1	1.044	2.09	1.04	1.044	0	0
100	5	1	1.044	1.04	1.04	0	0	0
100	15	1	1.044	2.09	1.04	1.044	0	0

100	15	1	1.044	1.04	1.04	0	0	0	1.116
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100	20	1	1.044	1.04	0.00	0	1.044	0	
100	0	1	1.044	1.04	0.00	0	1.044	0	
100	41	3	2.770	2.77	0.00	0	2.77	0	
100	10	1	1.044	1.04	1.04	0	0	0	
100	10	1	1.044	1.04	0.00	0	1.044	0	
100	40	2	1.280	2.56	1.28	1.28	0	0	
100	45	3	2.770	2.77	0.00	0	2.77	0	
100	25	2	1.280	1.28	1.28	0	0	0	
100	42	3	2.770	5.54	2.77	2.77	0	0	
100	15	1	1.044	1.04	1.04	0	0	0	
100	5	1	1.044	1.04	0.00	0	1.044	0	
100	15	1	1.044	1.04	1.04	0	0	0	
100	55	3	2.770	2.77	2.77	0	0	0	
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name	n	est	expected EST	n	CV	desired CV	
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	2	1970	6113	2			
	3	1174	6113	3			
	4	1174	6113	4		0.15	
	5	834	6113	5		0.15	
	6	834	6113	6		0.15	
	7	1247	6113	7	0.52	0.15	0.79
	8	5563	6113	8	0.32	0.15	0.49
	9	5444	6113	9	1.05	0.15	1.61
	10	5212	6113	10	1.07	0.15	1.64
	11	5119	6113	11	0.87	0.15	1.33
	12	5848	6113	12	0.88	0.15	1.35
	13	5860	6113	13	0.65	0.15	1.00
	14	5871	6113	14	0.65	0.15	1.00
	15	5080	6113	15	0.66	0.15	1.01
	16	5255	6113	16	0.64	0.15	0.98
	17	4644	6113	17	0.65	0.15	0.99
	18	4543	6113	18	0.66	0.15	1.01
	19	4173	6113	19	0.64	0.15	0.98
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	23	5551	6113	23	0.42	0.15	0.65
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	25	5611	6113	25	0.37	0.15	0.56
	26	5682	6113	26	0.36	0.15	0.55
	27	5648	6113	27	0.34	0.15	0.52
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	31	6907	6113	31	0.33	0.15	0.50
	32	7055	6113	32	0.32	0.15	0.49
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	38	6282	6113	38	0.33	0.15	0.00
	39	6006	6113	39	0.33	0.15	0.00
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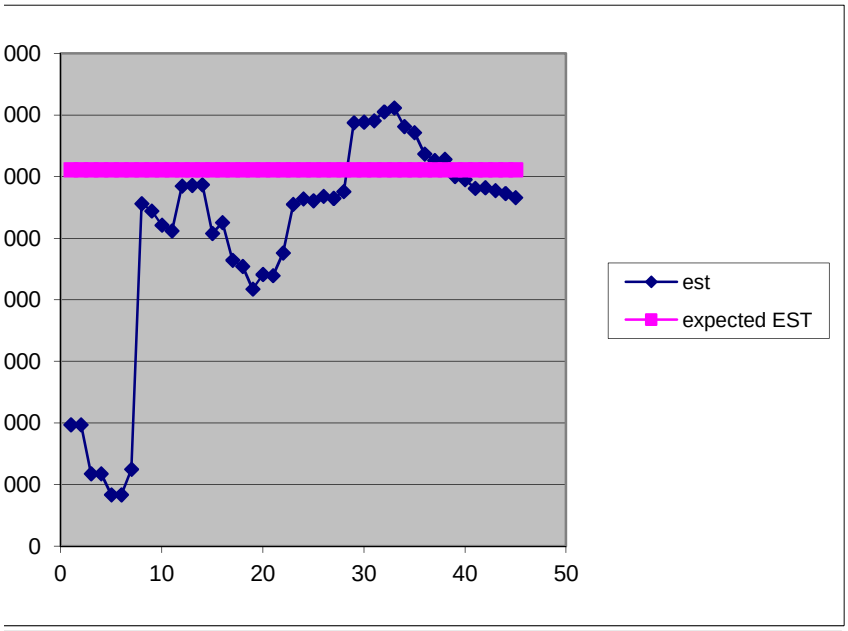
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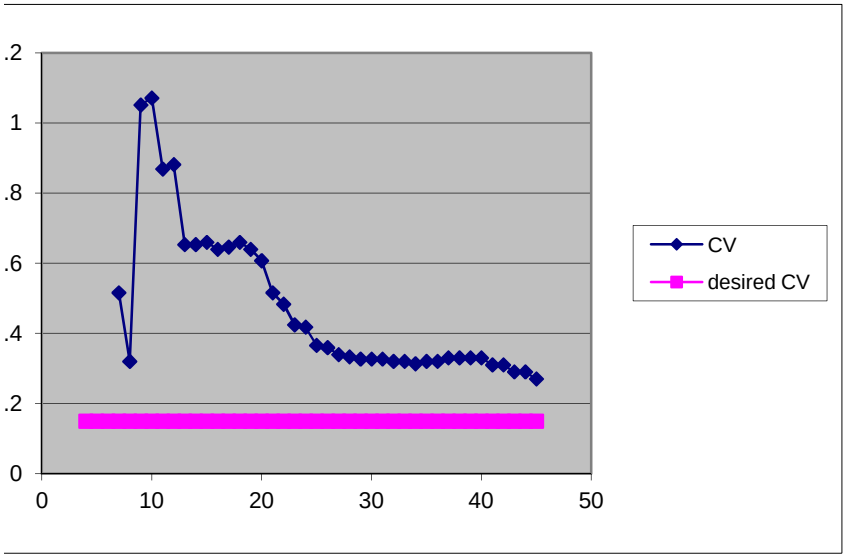
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CV
desired CV

after block no	s1 moose	add m	add cor	corrmoose	S1scf	s2 moose	add	corr add
15	24	8	10.8	25.68	1.07	11		
1	32			36.48	1.14	11	0	0
18	39	7	12.5	48.98	1.26	13	2	2.6
21	57	18	18.8	67.78	1.19	17	4	9.6
24	66	9	9.9	77.68	1.18	20	3	3.1
9	74	8	8.4	86.08	1.16	21	1	2.77
3	86	12	12.5	98.58	1.15	23	2	15
13	94	8	8.4	106.98	1.14	24	1	1.04
5	102	8	9.5	116.48	1.14	26	2	2.56
7	117	15	16.13	132.61	1.13	28	2	2.32
19	127	10	10.44	143.05	1.13			
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	150			168.72	1.12	0		
	150			168.72	1.12	0		
	150			168.72	1.12	0		

	S2scf
corrmoose	
20.9	1.9
20.9	1.9
23.5	1.81
33.1	1.95
36.2	1.81
38.97	1.86
53.97	2.35
55.01	2.29
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Page 80 redacted for the following reason:
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s.16

From:	Zimmerman, Ted FLNR:EX
To:	Shimkus, Jody FLNR:EX; Kriese, Kevin FLNR:EX; Bilodeau, Normand G FLNR:EX; Addison, Christopher FLNR:EX;
cc:	Thiessen, Conrad D FLNR:EX; Heard, Douglas FLNR:EX;
Subject:	Kaska regs package
Date:	Friday, October 7, 2011 12:03:04 PM

Good day,

I'd like to schedule a discussion regarding the regulation package that has come out of our negotiations with the Kaska.

As you know there is a direct relationship between the regulatory reforms that Kaska has proposed, and the finalization of the SEA that MARR is hoping to have completed this winter.

Last spring we agreed that there would be a joint approach (region and HQ) in moving this forward, as part of government's commitment to addressing Kaska's concerns. I'm hoping we can formulate a plan and discuss next steps now that the proposed regulatory changes have been developed.

I don't have the final wording on the regs package yet but in short:

- Split the LEH hunt in the Kwadacha and Tsay Keh traditional territory into an early and late season
- Reduce the number of LEH draws in each territory by 50%
- Hunting closure in and around Moose Lake
- Invoke CIs for moose in MUs 7-50 through 7-54

Can we plan a 30 minute conference call in the next week or so?

Thanks,

Ted Zimmerman

A/ Regional Manager, Omineca Fish and Wildlife
Ministry of Forests, Lands and Natural Resource Operations
Government of British Columbia
4051 18th Ave. PRINCE GEORGE BC V2N 1B3
250.614.9904
ted.zimmerman@gov.bc.ca

Pages 83 through 87 redacted for the following reasons:
- -
s.13, s.16

From: Heard, Douglas FLNR:EX
To: "danny case"; "Luke Gleeson";
cc: Zimmerman, Ted FLNR:EX;
Date: Friday, May 6, 2011 10:20:09 AM

Luke and Danny
Here is the letter I propose to go with LEH authorizations for Management Units 729 737-741.

Dear Hunter
Your LEH authorisation allows you to hunt on the First Nations traditional territory. If your authorisation is in 729, 737, 738, or 739, you may be within the traditional territory of the Tsay Keh Dene First Nation. If your authorisation is in 740 or 741, you will be within the traditional territory of the Kwadacha First Nation. Before you hunt, please check at the band office or phone, to receive information pertinent to their safety environmental concerns. The Tsay Keh Dene band office number is 250 993-2177 and the Kwadacha Nation office number is 250 471-2302 or 250 563-4161.

Doug

Doug Heard
Fish & Wildlife Branch
4051 - 18th Avenue
Prince George, British Columbia V2N 1B3
(250) 614-9903

From:	Zimmerman, Ted FLNR:EX
To:	"danny case"; "Luke Gleeson"; Heard, Douglas FLNR:EX; Watts, Glen FLNR:EX; Wilson, Doug J FLNR:EX; s.22 "Ron Fleming s.22
cc:	Bilodeau, Normand G FLNR:EX;
Subject:	Meeting tomorrow
Date:	Wednesday, May 11, 2011 9:33:00 AM

Good morning,

Thanks again for taking the time to discuss the options around LEH management in MUs 737 to 741 tomorrow. We will be meeting at our boardroom here at 18th Avenue in Prince George; let's plan to start at 9:30 AM (May 12) and I'm hoping we can be done by 3:00 PM at the latest.

Key actions for the meeting will include:

- Review current LEH regulations and hunter harvest statistics

- Discuss hunting activity recorded by Kwadacha and Tsay Keh wildlife monitors during the fall 2010 hunting season

- Consider reconfiguring the LEH seasons to redistribute hunters in time and space, in order to reduce hunter density while still permitting activity

- Open non roaded areas to GOS and come up with a mutually agreeable definition of 'non roaded'

If you have any other agenda items please forward them to me and I'll make sure to include them.

See you tomorrow,

Ted Zimmerman

A/ Regional Manager, Omineca Fish and Wildlife

North Central/West Region

Ministry of Natural Resource Operations
Government of British Columbia
4051 18th Ave. PRINCE GEORGE BC V2N 1B3
250.614.9904
ted.zimmerman@gov.bc.ca

From: donnyvansomer@kwadacha.com
To: Zimmerman, Ted FLNR:EX;
Subject: Meeting
Date: Tuesday, November 13, 2007 8:52:07 AM

Ted I,m would really like to follow up on the issues raised they are important especially the changes to the hunting regulations, changes to the hunting season dates and also the specific areas, this is important to us and we should definately have input as a Government in our traditional area. Looking forward to the meeting I,m waiting for some other dates for meetings also so can,t say what dates are best yet. Donny

From:	Wilson, Doug J FLNR:EX
To:	Bilodeau, Normand G FLNR:EX; "Bob Frederick (BC Trappers)"; Heard, Douglas FLNR:EX; "Ken Watson"; "Mark Grafton "; "Michael Schneider (GOABC) "; "Olin Albertson"; Watts, Glen FLNR:EX; "Wayne Salewski (BCWF) "; Wilson, Doug J FLNR:EX; Zimmerman, Ted FLNR:EX; "Chief Dennis Izony (Tsay Keh Dene) "; "Chief Derek Orr (MLIB)"; "Chief Dolly Abraham (Takla Lake)"; "Chief Dominic Frederick (Lheidli T"enneh)"; "Chief Donny Van Somer (Kwadacha)"; "Chief Fred Sam (Nak"azdli)"; "Chief Jacqueline Thomas (Saik"uz)"; "Chief Partner Schielke (Yekooche)"; "Chief Ralph Pierre (Tlazt"en)"; "Chief Reginald Louis (Stellat"en)"; "Danny Case (Kwadacha)"; "Darryl McCook"; "Dean Joseph (Yekooche)"; "Dwayne Martin (Nak"azdli)"; "Jim Webb (Tlazt"en)"; "Joseph Patton (Stellat"en)"; "Karl Sturmanis (Tsay Keh Dene)"; "Kirby Johnnie"; "Takla Lake Band"; "Vincent Chingee (MLIB) ";
Subject:	MINUTES OF NOVEMBER 9TH REGULATIONS MEETING
Date:	Wednesday, January 4, 2012 4:01:15 PM
Attachments:	STEERING COMMITTEE TERMS OF REF Jan 15 07.DOC Planning Area Map Lheidli.docx HUNTING REGULATIONS MEETING NOTES.docx

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Thought I'd better get these out before another New Year's Eve comes and goes! Attached, an initial stab at the minutes of our meeting last November; if you have any concerns that I missed or misrepresented something, please let me know, and I'll make some adjustments and send out a final copy. I also attach the Terms of Reference for the Regional Wildlife Management Process, the predecessor of this group, the latter to be called the Omineca Wildlife Management Committee.

Doug Wilson

Douglas J. Wilson, R.P. Bio., P. Ag.
Wildlife Biologist
Ministry of Forests, Lands and Natural Resource Operations
Fish, Wildlife and Habitat Management
Omineca
Phone / Voice Mail: (250) 614-9926
Fax: (250) 565-6940
Email: Doug.J.Wilson@gov.bc.ca

And for you (fellow) GPS aficionados: 53.90683 -122.79640
"Life is what happens to you while you're busy making other plans" - John Lennon (1980), "Beautiful Boy"

HUNTING REGULATIONS MEETING NOTES, NOVEMBER 9, 2011

Location: MOE/MFLNRO office, 4051 18th Avenue, Prince George BC

In attendance:

Doug Wilson, MFLNRO

Glen Watts, MFLNRO

Doug Heard, MFLNRO

Ted Zimmerman, MFLNRO

Michael Schneider, GOABC

Ken Watson, GOABC

Darryl McCook, Kwadacha First Nation

Kirby Johnnie, Tlazt'en First Nation

Bob Frederick, BC Trappers' Association

Wayne Salewski, BC Wildlife Federation

Norm Bilodeau, MFLNRO

Olin Albertson, BC Wildlife Federation

Dwayne Martin, Nak'azdli First Nation

HOUSEKEEPING/TERMS OF REFERENCE

MS requested separate minute taker for these meetings, other than direct participant. WS requested clarification of the role of this committee (Omineca Wildlife Consultation Committee?) vs. former RWMP. TZ discussed the role he sees for this committee, discussing wildlife management issues with wildlife user groups, First Nations always welcome to attend, or can be met with separately on a "government-to-government" basis. WS mentioned one part of the BCWF role would be to lobby at a higher level for more funding for regional wildlife management. DH spoke of the committee discussing broader objectives for huntable species;

the actual regulations process has defined timelines, which this year have been foreshortened considerably. March 2013 would be the next major, specific submission of regs changes. TZ noted that the new timelines make it difficult to deal with a fall submission. Meeting schedules for this group were discussed, given a now 2-year cycle of new regs. A "serious conservation concern", however, can trigger interim changes to the regs. The next synopsis will be dated 2012 -2014. MS wondered if this group was the appropriate venue for vetting changes, or the provincial website. TZ noted that the website is not, and has not been, the driver for decision making in our region. Requests have and will come from outside this group, from non-consumptive users, general public. Can't possibly please everyone. The web does offer outside groups an opportunity for input to the process. Should we also have non-consumptive reps on this committee? KW suggested we put the best regs forward to benefit, hopefully, all users, make good decisions at this table. BF opposed the presence of non-consumptive users, could lead to acrimony, e.g., PETA virulently opposed to the consumption of wildlife. TZ stated group for now will be confined to users of wildlife, accepting submissions from other interested parties, in writing or by invitation if the group desires. WS felt that we should come up with a management strategy for all species that includes the interests of, say, non-consumptive wildlife viewers, with an outflow for harvest. BF brought up the Provincial Hunting and Trapping Advisory Team (PHTAT) for larger issues. TZ would like to see these regional meetings continue, with everybody having an opportunity to contribute, either regionally or provincially via the web. He noted that First Nations may still require separate "government-to-government" meetings, which we will accommodate, but are more than welcome to participate on this committee. WS stressed that the BCWF in this region wants to partner with First Nations on many issues, such as ecological restoration, move forward together. MS noted that the Omineca Ecological Restoration Steering Committee is in existence, funded by BC Hydro. WS wants to see more "on the ground" application of research, either via Hydro, or Rio Tinto Alcan, $$ made from extraction or power generation turned back to habitat enhancement.

There was discussion of the name of this group: Omineca Wildlife Management Committee emerged as top contender for official name; autonomous group to set objectives for wildlife species, hunting regs being one tool for meeting objectives. MS wanted to see Terms of Reference, and rules for meetings. TOR for former RWMP will be circulated for comment.

KEY ITEMS FOR DISCUSSION (TZ)

- Cooperative Wildlife Management Agreements with FNs; Kaska Dene/Kwadacha nearing completion

- Elk became big deal last year for agricultural community, high snow depths leading to pressure on ranchers, especially in Robson Valley. Held one meeting in June, follow-up Oct. 21 to discuss elk:
    - Opened up RV LEH authorizations to max limit (quintupled)
    - Money made available for elk inventory
    - "dating service" to match hunters and landowners established

Will conduct these activities, revisit next spring

- Moose decision support tool: $$ found for large inventory, targeting First Nations' concerns

Overlap between that view of moose populations, and broader wildlife management objectives perhaps expressed by this group

Elk will be counted late March 2012, moose starting in about 5 weeks in Parsnip, plateau area first thing New Year. Hiring a contractor for moose management planning. Will have MUCH more data to work with next spring. Focus of inventory funds on First Nations: "barriers funding", i.e., removing barriers preventing dialogue between us and FNs on common issues, such as moose numbers. Some overlap of this committee with elk committee which just met.

DH discussed the "constant effort model", in which essentially the same moose regs have remained in place for decades, vs. the "tracking strategy", quick response to perceived changes in population makeup, which requires current and frequent data.

Trends west of PG, east (not the RV or mountains), Bulkley Valley/Lakes, and FSJames, same general trend in moose: bull kill rose steadily to 2004, declined to '08 in all areas, now appears to be rising again; went from exceptionally high nos. to exceptionally low. Coming back now, but still below the long-term average... cow moose, by contrast, seem to have been hit hard, especially in the BVLD. MP beetle has been prevalent over the whole region, though somewhat less east of PG. There is still forage in MPB – killed stands, but not cover. Numbers of cow moose did not increase on the ground during the MPB years. During the calf harvest, an average of 7% of the calf crop for the year is taken. 70% of them die naturally between birth and their first winter.

Every five years or so, we may experience peaks and troughs, but in the longer term we see generally flat trends. The dips are a problem for everyone; MS noted that wolves are well positioned to take advantage, and efficiently, of excesses and deep snow conditions. KW pointed out that some logging does benefit moose, but not all; conditions are better now for

black bears. DH noted that high calf:cow ratios are still noted after hunting season. Black bears seem to take relatively few moose. In general, the government can't respond quickly enough to accommodate changes in hunting regs for these year-to-year variations. Emergency closures have to be run through Cabinet. Our kill data are often two years out of date by the time regs are set. We can't really exploit the peaks or conserve during the troughs, and yet maintain the long-term trend. Money doesn't seem to be there to get the kill data to us any sooner, or licensing info or survey results. Supposed to be going electronic, but not yet on the horizon.

KW asked about Guide Declaration forms and trends showing up there. GW noted that major drops are not seen for 2+ years. The resolving power of groups like this is rather poor, not precise enough. The complete collapse of a species in an area could trigger an emergency closure, however. Haven't done moose composition surveys for a few years, but this winter looks like we will be doing LOTS of moose inventory, finally resourced appropriately.

BF commented on the intensity of MPB logging around FSJames, very large cutblocks, "moonscape" appearance. At one point 900 log trucks a day through town. South of Great Beaver Lake, not logged hard; Bugle Lake, "moonscape". DM commented his family area was around Gr. Beaver Lake; Canfor refused to deactivate roads; now have to go to other areas for moose. FNs need to be much more involved in decision-making on logging, hunting issues; ongoing problem 30 years or more. General discussion then of crafting management regime to meet all objectives, FN, guides, resident hunters, public, etc. Priorities being conservation, First Nations use, and recreational hunting, in that order. A common understanding of "conservation" remains somewhat elusive; different opportunity mixes in different areas. MS suggested a goal, and objectives to meet that goal, still needed, aiming for a healthy age structure and self-perpetuating population in the face of needs for recreational hunting, sustenance, and resource extraction. The Moose Plan would be our mandate (KW). BF pointed out that more wood is coming out of FSJames district than all of Vancouver Island.

There was considerable discussion of the upcoming moose inventory, intended to duplicate the work done in '98 and '06, PG east and west, and north of FSJames. A random selection in each general "zone" of some 2000 survey units will be intensively surveyed (9 sq. Km. Blocks). Additional work will be done, with some telemetry of moose, in Kwadacha traditional territory. In areas like that, and Tsay Keh territory, "high-grading" of winter moose areas will be done, less random, to get detailed composition surveys, this winter, and next winter, random block surveys as elsewhere this winter in the region. Enough of those 9 sq. Km. Blocks will be done until our confidence intervals are "liveable". For the Kwadacha / Tsay Keh areas, hunter pressure is much less, it's important to them to get a better idea of moose populations in their traditional hunting areas, and wolves are an important factor they want to know more about. This year they'll do a composition survey, next year the inventory.

There was more discussion of varying groups' objectives for moose, e.g., sustenance levels only, large bulls, more cows and calves, wolf control, etc. DH noted that if the natural survival rate can't yield more moose, then we may be faced with considering wolf control, but that would take many meetings of all interested parties. And other factors, such as forestry activities and access, would enter the mix. Priority species for this region are essentially moose, elk and deer, in that order; plans needed for all, eventually.

COUGARS

GW announced the opening of a cougar season west of PG (7-10 to -15, 24, 25), as requested for years by guides, BCWF, and C.O.S. Density is low, harvest will be minimal, opportunity to bring in hounds on private land. BF asked about incidental take by trappers – provincial policy on that issue needed. Support for cougar season expressed by guide and hunter reps present, no objections.

KWADACHA

Negotiated vs. legal settlement discussed, Cooperative Wildlife Management Plan. Seen as "slippery slope" decision by BCWF. TZ noted use of camps and territory by outside hunters high probability of infringement if went to court. WS stressed need for partnerships with FNs, TZ argued FN constitutional rights to hunting and fishing first priority. WS argued for stakeholders and FNs to be together on issues of supply of game/sustenance species. MS argued that the ranching community had taken a broad-brush approach with this group before and gotten what they wanted, that what was needed instead were specific solutions to specific problems, e.g., overcrowding, overharvest, wolves, etc. Need to use a table like this to identify issues and solutions. TZ noted that many FNs feel they are not a real part of this conversation, and these face-to-face agreements are one way of achieving some control over the wildlife resource within their traditional territories. MS felt we should be addressing specific concerns with specific actions. Trapping, guiding and hunting reps generally felt this sort of agreement could lead to unnecessary restrictions on non-FN users of the resource, and that more and more such arrangements would be solicited by FNs. TZ stressed constitutional responsibilities, and the need to avoid infringement of aboriginal rights.

GRIZZLY BEAR RANGE OF AUTHORIZATIONS

Actual numbers of GB LEH derived from detailed spreadsheet calculation including factors of harvest, density, problem wildlife concerns, etc. ROA is simply the range within which nos. of LEH authorizations can be granted. MS and KW did not support an ROA change, given the numbers of successful grizzly hunters out there. Too many GB hunters already in the woods. WS not hearing the same complaint as guides. GW suggested maybe discussion should be what would give hunters success with grizzlies, and not the ROA. TZ argued that an increase in the ROA gives the government flexibility to change the number of permits put out. A change of permit numbers does not necessarily mean a change in harvest. Guide reps generally objected to an increase in the grizzly ROA, felt other tools existed to regulate grizzly hunting, rejected increasing the ROA. Not a problem with the BCWF. No consensus about increasing ROA for GB at this meeting, guides and BCWF need to discuss further

MORKILL ROAD RESTRICTION

Legislation now reads Morkill Forest Road in MU 7-3; road crosses at one point into 7-17. Want to change MV Prohibition Regulation to read 7-3 AND 7-17, where Morkill FSR passes. All agreed on this change.

WOLVES

KW / MS (guides) propose NBL on wolves in Region 7A, no concern wrt their numbers, good from hunting perspective. General agreement on NBL proposal.

B BEAR TRAPPING

BF requested coincide trapping season (now Oct. 1 – May 31) with hunting season to provide greater opportunity to trap bears (denning now around Oct. 15). GW will discuss with Victoria. Guides were OK with a Sept. 1 opening. DM noted that, if BBs abundant, not an issue for FNs. No real pushback noted on this issue, DH indicated will take forward.

LYNX

BF: trapping season now open Nov. 15, would like moved back to Nov. 1. TZ noted hunting season also now open Nov. 15, likely both would need to change. GW: generally agreed to at provincial level, rather than regional. Can look into getting on PHTAT agenda. Hunter harvest essentially 0. TZ: lynx/ BB dates will go to province for consideration, GW to report back

2 KM PRIVATE LAND PROVISION

MS brought up, and WS: 2 km. not a sound issue, doesn't help deal with hot spots; with CN property, virtually ALL of RV within 2 Km. of private land. DH on side with concept of removal of 2 km. provision. Guides proposed wording should just say private land only. WS agreed, general support for removal of "within 2 km. of private land" wording

LATE SEASON LEH ELK

OA wanted to see mandatory reporting for late LEH elk. GW felt too onerous to put them back on Compulsory Inspection. Intend to total count all elk polygons in RV, Salmon, Stuart, Necoslie, to get baseline data. Plus, questionnaire to go to all LEH holders, expect 60 – 70% response (additionally, we intend to do a telephone survey of LEH holders to determine success). WS recommended electronic reporting with conditions and penalties as a component of our elk management strategy. TZ requested producers let us know if hunters are helping, or not cooperating with them.

GW suggested a late LEH elk season could be introduced to 7-25, perhaps 2 permits/season. DH noted an ROA change needed, from 1-10 for that MU. General agreement on introduction of late LEH elk season to 7-25. 12 permits total considered perhaps too much, maybe only 40 in that herd?

RAUSH RIVER

Carrier logging lower reaches of Raush, road now pushed to Lower Raush Protected Area (LRMP) on north side. DW talked to planning forester, unlikely road to go further up Raush, significant roadbuilding costs, would have to go through Protected Area, told lumber prices would have to rise "10 times" to justify pushing road further up. Concern from locals about opening up of unroaded moose/deer habitat, potential overkill in Raush. F & W will formally contact Carrier and ask to be kept apprised of any plans to extend road further up valley. There

was general agreement, if the road were proposed to go further, that a "Morkill-style" vehicle hunting closure should be imposed on that road, i.e., no use of motor vehicles for hunting purposes. Guides and BCWF agreed with concept of no motorized hunting in newly roaded area.

OPEN MULE DEER DOE SEASON

GW discussed deer seasons; youth-only does popular, should remain, but consider removing open doe season. OA commented on significant deer kill winter '06 – '07, other tough winters including last one. Youth season essential to maintain. WS noted that heavy snow winters seem to have impacted mostly from Bednesti to west. GW noticed same decline in deer harvest across region; however, not a conservation issue, but perhaps adjusting recovery time for deer populations. KW willing to shut down general doe season, not youth. GW noted deer complaints "drying up", likely due to snowy winters. OA in favour of rescinding general doe season, Vanderhoof club supports. Unanimous support for elimination of antlerless mule deer season, retention of youth season.

WHITE-TAILED DEER

Some discussion of white-tailed deer seasons, OA felt bag limit should go to 1. GW pointed out that WTDE essentially provincially managed, little appetite for changing seasons so soon after implementing an almost provincial regime of regulations. MS supported the BCWF suggestion to lower regional bag limit for WTDE from 2 to 1. OA then suggested that perhaps we should wait on this one for a couple of years, get the overall BCWF perspective on issue; table for now, bring forward later.

VANDERHOOF FISH AND GAME SUBMISSIONS (OA)

- LEH spring/fall grizzly bear, 7-12, 7-13, small no. of permits (precluded by GB densities, calculation won't allow for?)
- Open archery season, any bull moose, Nov. 16-20
- Open archery season, 4-point mule deer bucks
- Reduce calf moose seasons

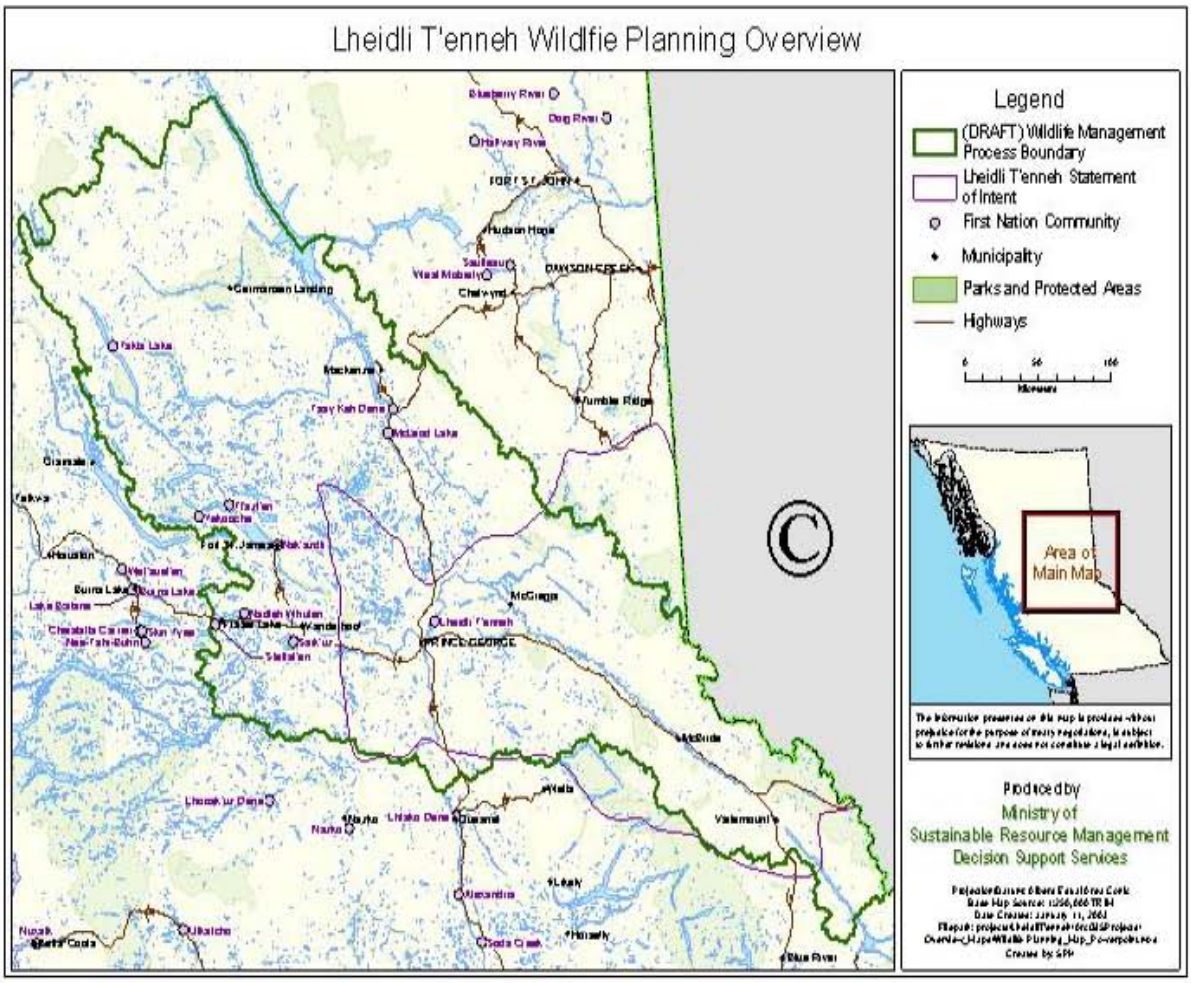
DH noted need to reduce confusion with LEH holders; want to hunt more than spike-fork Sept 1-9 with a bow (current season)? Longer LEH proposed – a second archery only season, any bull, in November. Archery seasons have been maintained same for years, pre-rifle season. GW noted that if additional LEH archery season opened, needs to be clear that can't apply also for rifle season, archery only. MS felt late season not really an opportunity to hunt. General consensus, however, on extending LEH opportunity, though WS opined that this particular season might not be worth the effort to establish.

VANDERHOOF ACCESS MANAGEMENT PLAN

A number of polygons across district designated “non-motorized” by LRMP, consider designating non-motorized regs in those areas? Not a lot of agreement on access provisions. DH suggested tabling this item, public process came to conflicting conclusions. This issue came up in Skeena, Forest Practices Review Board brought up, if plan says should be non-motorized, should we not put forward legislation to that effect? NB noted LRMP findings not enshrined by Cabinet.

COW/CALF LEH AUTHORIZATIONS

DH noted authorization should say “cow” only rather than “cow or calf”. OA felt calf season should be reduced to 7 days. TZ suggested we look at cow:calf ratios before changing seasons. GW pointed out that we kill something like 3% of the cows out there each season, and 7% of the calves (while 70% of the calves die naturally over the winter).


Lheidli T'enneh Wildfie Planning Overview
Legend
(DRAFT) Wildlife Management Process Boundary
Lheidli T'enneh Statement of Intent
First Nation Community
Municipality
Parks and Protected Areas
Highways
Area of Main Map
Produced by
Ministry of
Sustainable Resource Management
Decision Support Services
©

REGIONAL WILDLIFE MANAGEMENT STEERING COMMITTEE
TERMS OF REFERENCE

September 20, 2005

1. Definitions

"Regional Wildlife Management Steering Committee" is the body tasked with coordinating the efforts of the Regional Wildlife Working Group to achieve the objectives of the regional wildlife management process.

"Regional Wildlife Working Group" refers to the regional group of individuals representing the federal and provincial governments, the Lheidli T'enneh, other First Nations in the region and interested third party groups who will participate in the regional wildlife management process.

2. Purpose

The purpose of the regional wildlife management process is to:

- help identify commonalities with respect to the interests in wildlife
- encourage the sharing of information among the participating parties
- enhance working relationships
- assist parties to reach a common understanding of the rights and interests of the First Nations and third parties, and address those rights and interests
- operate independently, yet co-operatively (may even compliment) other processes and initiatives in the region, and
- achieve an acceptable method of decision making with respect to wildlife management in the northern interior region

3. Geographic Scope

The geographic scope of the process is delineated in the attached map. Because the variables on which the map is based may change from time to time, it may be necessary to change the geographic area in the future with the agreement of members.

The Steering Committee and the Working Group will also consider other dynamic factors flowing from the working relationships between this process and other initiatives, processes or programs, which may in turn prompt a need to adjust the geographic scope. Such factors may include:

- hunting regulations
- conservation requirements
- new or evolving information (research/inventory data)
- problem animal management
- enforcement

- wildlife management programs
- neighbouring jurisdictions & planning initiatives such as LRMPs, and
- regional fisheries management processes

4. Membership and Roles

The memberships of the Steering Committee and the Working Group are attached in Appendix A. The roles of Steering Committee members are outlined as follows:

Chair/Vice-Chair:

- organize meetings
- prepare agendas
- prepare minutes
- distribute information
- maintain distribution list
- conduct meetings
- facilitate conflict resolution
- make decisions on procedural items
- notify the Working Group of upcoming Steering Committee meetings and provide agenda

Members:

- have a say in reaching consensus on decisions
- are selected by their constituents to represent the views of their organization
- member inclusion will be decided on a case by case basis

Alternates:

- may participate at the table
- will have voting rights only in the absence of their member representative

Guests:

- may be invited by consensus from time to time to focus or speak on specific issues
- are only invited for the duration of that issue

Observers:

- Working Group members may attend Steering Committee meetings to observe proceedings by providing advance notice to the Steering Committee
- may be allowed to speak to proceedings if recognized by the Chair prior to the meeting

New Members:

- must make a formal request in writing to the Steering Committee
- must accept the Steering Committee's terms of reference
- must be accepted by consensus of the Steering Committee

The Steering Committee may ask new sectors to join and select a member representative and an alternate.

5. Responsibilities

The Steering Committee will draft any other document required to achieve the purpose of the process, including annual work plans.

The Steering Committee, with the assistance of the Working Group, may undertake consultation with communities in the Northern Interior to discuss wildlife management issues. Community consultations may be considered in accordance with the Steering Committee Work Plan.

Members of the Steering Committee and the Working Group have the responsibility to keep their constituents informed. This includes providing updates and notes of the meetings, discussing suggestions, ideas, rationale, and seeking comments and approval for decisions required to achieve the objectives of the Steering Committee.

The Steering Committee will also have responsibility for communication with the public, communication with other interests and formal communications with Government, including local governments.

Steering Committee members have the responsibility to provide up-dates, meeting notes, documents, relevant advice and materials to their alternates.

Steering Committee members have the responsibility to meet with their technical advisors and may invite their technical advisors to Steering Committee meetings, with the approval of the Steering Committee, as necessary.

The Steering Committee will identify one member as the spokesperson for communication with the media. The spokesperson will take direction from the Steering Committee.

6. Decision Making

Consensus

Decisions will be based on consensus. Consensus is reached when there is agreement in that all members are willing to support or not oppose an outcome. It may not be possible to reach consensus on every step of the process. The record of decisions will identify opposing views where consensus cannot be reached.

When initial agreement is achieved, it is understood that members will have to take the agreement back to their constituencies for approval. It is also understood that agreement

in the Steering Committee carries an obligation that members will strongly represent the benefits of any agreement to their respective constituencies.

Principles of consensus-building:

- the purpose of this process is to reach agreement
- the members agree to act in "good faith" in all aspects of the process
- members recognize the concerns and goals of others as legitimate
- members agree to share information
- members agree to fully explore issues and search for solutions
- the focus should be interests and concerns rather than positions and demands
- members are committed to the broadest possible consideration of alternatives and solutions
- all suggestions and offers will be regarded as tentative until consensus is achieved, and
- members are obliged to explain their interest and not stall the process without legitimate reason

Dispute Resolution

If consensus cannot be reached, the following steps will be taken:

- clearly define the issue and identify the members concerned and their specific interest in the issue
- ensure all relevant information regarding the issue is made available for review
- develop a range of solutions for discussion
- analyze the solutions for their impacts and determine if they meet the objectives of the process, and
- select a solution that best meets the needs of all participants

If any member disagrees with the proposed solution, they will then be responsible for demonstrating clearly that:

- the issue is a matter of such principle that they can not accept the decision, and
- their interests would be inequitably impacted by the proposed decision

If the dissenting member(s) can demonstrate either condition, then the remaining members of the Steering Committee will make efforts to address those concerns using the above steps.

If the dispute cannot be resolved through this more in-depth analysis, members should endeavour to reach consensus on:

- the precise nature of the disagreement
- options for the resolution of the disagreement and

- how the disagreement or lack of consensus should be reflected in the Final Report

7. Management Issues

The most important aspect of a Regional Wildlife Management Process will be the nature and scope of the issues to be discussed and decided on by the participants in the process. Many factors and influences impact wildlife and wildlife management. This process should deal with as many of these relationships and concerns as is necessary to address wildlife management issues and impacts.

Immediate priorities for the Regional Wildlife Management Process will focus on:

- Harvest management, including harvest levels, seasons, bag limits, allocations and harvest sharing
- Habitat
- Collection and management of inventories, research and relevant information

The Steering Committee may identify other priorities subject to Working Group approval. These may include new issues brought forward by government or process participants.

8. Work Plan and Timelines

Annual or project-based work plans will be developed in consultation with the Working Group.

How often the members involved in a RWMP meet in order to accomplish the assigned tasks in an efficient and affordable manner is an important consideration in terms of human and financial resources. Demands are likely to fluctuate through development, implementation and routine operations periods but, at the very least, an effective schedule of meetings must recognize the influence of the following constraints:

- Government submission and decision point cycles
- First nation seasonal rounds
- Guiding and trapping seasons
- Natural wildlife cycles
- Emerging or emergent issues and tasks

Government must receive information, conduct analysis and make decisions in a timely fashion in order to fulfil legal obligations with respect to managing wildlife in the province. For example, February 15 annually for regional regulatory submissions, June 15 for printing of annual regulations, March 31 for end of fiscal year budget cycles.

9. Budget

Members, not including government representatives, residing outside of a meeting location area:

- may submit travel expenses (with original receipts) for reimbursement to:

  Douglas J. Wilson, R.P. Bio., P. Ag.
  Wildlife Biologist
  Ministry of Environment, Environmental Stewardship Division
  Omineca Region
  4051 - 18th Avenue
  PRINCE GEORGE BC V2N 1B3
  Phone: (250) 614-9926
  Fax: (250) 565-6940
  Email: Doug.J.Wilson@gov.bc.ca

- will be reimbursed at provincial government rates for travel, meals and accommodations when required to travel and/or stay overnight at the location of a meeting

10. Amendment

These Terms of Reference may be amended by the Steering Committee with the approval of the Working Group. These Terms of Reference will continue in effect until amended.

APPENDIX B

Regional Wildlife Management Committee Membership

Members

Les Husband, Co-Chair -BCWF
Phone # (250) 614-7488 (w)
Fax # (250) 614-7435 (w)
Phone
Fax # s.22
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Bert Filion – Guide & Outfitters
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Fax #
Email s.22

Eric Hanson
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Fax #
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Laurel Crocker – Nazko
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Dolores Alec – Chief (Nazko)
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Fax # (250) 992-7982

Marvin F George – Chair
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Fax # (250) 963-8490
Email *marving@shelley.lheidli.ca*

APPENDIX C

Wildlife Working Group Membership

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Email *b-bvent@uniserve.com*

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Steven F. Kozuki – Council of Forest Industries (COFI)
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Chief Tommy Alexis - Tlazt'en Nation
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Fax # (250) 648-3250
Email chief@tlazten.bc.ca

Chief Geneva Irwin - Red Bluff Indian Band
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Fax # (250) 747-1341

Chief Colleen Erickson - Saik'us First Nation
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Fax # (250) 567-2998

Alec Chingee – McLeod Lake Indian Band
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Email *c/o dsolonas@mlib.ca*

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Email *Tom.Wood@ec.gc.ca*

Don Cadden – Prince George Regional Manager, Ministry of Environment
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Steve Feldman – Senior Policy Analyst, Aboriginal Lands and Resources Branch, Ministry of Sustainable Resource Management
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John Hackett – Sliammon Wildlife Technician
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Fax # (604) 843-4422
Email john hackett@sliammon.bc.ca

Robert Phillips (Cariboo Tribal Council)
Phone # (250) 392-7361
Email r.phillips@nstq.org

Sharolise Baker (Carrier Sekani Tribal Council – Tribal chief Harry Pierre)
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Fax # (250) 562-8206
Email Sharolise@cstc.bc.ca

Cyril Jeck (minutes only)
Robson Valley Cattleman's Association
Phone s.22
Fax # s.22

Moose regulations change proposal 2012 for MU's 737-741

Ted, 738 is not part of Zone E (my mistake yesterday) - there is an LEH cow season and GOS calf season in 738. That does not change the fundamentals of our agreement.

Current

737, 739-741 LEH bull season and GOS spike-fork season; guides on quota

738 LEH bull season, LEH cow season, and GOS spike-fork season; guides on quota

Proposed actions

Subdivide each MU into an open season zone and an LEH zone. Boundaries will primarily be based on geographic features like height of land. The LEH zone will include essentially all road accessible areas, thus the GOS area will be in backcountry areas.

The LEH permit numbers will be reduced by 50% of current.

Guides will be given a quota in the GOS area that will be decided by the RM – that decision does not fall under the allocation policy

The LEH permits will be split into an early and a late season divided by the middle of the 3rd week in September (rather than a specified constant date)

Questions remaining and things yet to do

Map the LEH zones

Do guides get a quota for the LEH areas – probably so small as to be ~ zero anyway so maybe just make them all zero – depends on LEH zone mapped area

Will there be a no shooting buffer on the roads?

Consult guides and residents

Logic // rationale

- Supported by Tsay Keh and Kwadacha bands

will likely reduce total moose kill thus leaving more moose the Aboriginal hunters

- moose conservation not compromised
- will space hunters out over time to reduce crowding issues
- will allow guides to have higher quotas in the backcountry
- supported by the only guide we talked to (other guides and residents not yet consulted)
-

Pages 116 through 117 redacted for the following reasons:
- -
s.13, s.16

From: donnyvansomer@kwadacha.com
To: Zimmerman, Ted FLNR:EX;
Subject: Re: Followup meeting
Date: Tuesday, November 13, 2007 3:03:09 PM

Ted Iwill be in P.G. on the 4th to th 6th of Dec. which would be great timing for a meet one of the other issues would be the L.E.H in the area.

Donny

> Dear Chief Donny van Somer and Danny Case,
>
> I wanted to express my thanks for taking the time to participate at the
> Regional Wildlife Management Process meeting held today (November 9) here
> in Prince George. At that meeting I committed to you that I would
> endeavour to meet again to discuss issues related to wildlife management
> in the Kwadacha Traditional Territory.
>
> Possible agenda topics for us to discuss could include:
>
> * the RWMP process and your involvement in it
> * further elaboration on the recommendations that you tabled at our
> meeting today
> * how you would like the process of communication between our respective
> governments to look going forward
> * any other items that you would care to table
>
> While my schedule is fairly booked up for the remainder of November,
> things are quite open during December (except for the 11th and 12th). My
> staff and I would be willing to host a session here at our office in
> Prince George or alternatively we could arrange to travel to Kwadacha,
> whichever would be more convenient for you.
>
> Thanks again for your input today and I'll look forward to hearing from
> you soon on a date for our next session.
>
> Kind regards,
>
> ----------
> Ted Zimmerman
>
> Section Head, Fish & Wildlife Branch
> Environmental Stewardship Division, Omineca Region

Pages 120 through 146 redacted for the following reasons:
- -
s.13, s.16
s.16
s.16, s.17

From: Luke Gleeson
To: Zimmerman, Ted FLNR:EX;
Subject: Re: Letter to Residents
Date: Wednesday, June 20, 2012 2:38:45 PM

Hi Ted,

Thank you for the information.

In touch,

Luke

On Wednesday, June 20, 2012, Zimmerman, Ted FLNR:EX wrote:

> I'm comfortable with it Luke; I think the key messages are the right ones and it generally aligns with what we've been saying. I've copied below my general response to queries our office has received about the regs change. Feel free to use the wording if you think it would help.
>
> Ted
>
> - In November 2004, the Supreme Court of Canada in the *Haida Nation v. British Columbia (Minister of Forests)* decision set out new legal obligations on government to consult and accommodate First Nations, as appropriate, even where they have not yet proven aboriginal rights or established rights in a treaty. This has significant implications in British Columbia where most First Nations assert but have not yet established in a court, or through a treaty, aboriginal rights and title.
>
> - Courts have recognized the role of government in balancing its legal obligation to consult and accommodate First Nations with other societal interests.
>
> - Government has a legal duty to provide reasonable accommodation, where government can demonstrate that those accommodations substantively address the aboriginal interests raised.

- The Provincial Wildlife Allocation Policy determines priorities for the allocation of wildlife resources. After conservation of a species is addressed, First Nations are afforded the priority to harvest wildlife for food, social and ceremonial purposes. Resident and non resident shares of the harvest are then determined once First Nations needs have been addressed.

- The Kwadacha and Tsay Keh First Nations approached government with an assertion that their aboriginal needs for food were not being met or accommodated, by virtue of their strong prima facie claim to aboriginal rights and title within their traditional territory. Furthermore, both First Nations indicated that their priority to harvest wildlife was not being met under current regulations and was therefore inconsistent with Ministry policy. Both Nations asserted that their ability to acquire moose using preferred means and methods was being compromised under the current regulatory regime.

- In the 1990s, a LEH season was developed in the Tsay Keh and Kwadacha traditional territories to accommodate concerns about resident hunting raised by the two Nations; these seasons were generally under subscribed by resident hunters, within the range of authorizations established by Order in Council.

- Despite the development of the LEH season, several key issues continued to be brought up by both Nations. First, each Nation asserted that resident moose hunting activity along the main lines and spur roads within their traditional territories was resulting in a net down of moose supply, resulting in a hardship to their community members. Second, resident hunting camps were often located on sites traditionally used by both Nations prior to road development, resulting in conflict between resident hunters and First Nations users. Third, First Nations hunters felt displaced by resident hunting activity and were therefore modifying their hunting behaviour to avoid conflict with non native hunters.

- In 2010, Ministry of Environment staff proposed a Vehicle Access Prohibition regulation to then Minister Penner, for the management units within the two Nations' traditional territories. The regulation was developed over two years of extensive consultation with the two Nations, however it was not approved.

- Following this decision, both Nations continued to look to government to accommodate their interests, in response to the Minister's rejection of the Vehicle Access Prohibition in 2010. The position of the two Nations was that government had yet to invoke meaningful measures that would address asserted infringements of their rights to hunt.

- In 2011 both Nations renewed negotiations with government in an effort to address their concerns. Both indicated that they did not want to eliminate non native hunting, but stated that current harvest rates were continuing to infringe on their priority right to harvest. The outcome of that negotiation was a proposal to reduce the number of LEH permits by 50% in MUs 7-37 to 7-41, in order to reduce the overall moose harvest, and to split the hunting season into two periods to reduce the likelihood of large resident hunting camps occupying traditional use areas.

- This proposal was reviewed by the regional and provincial representatives of the BC Wildlife Federation, who expressed concerns about the reduction in hunting opportunity. These concerns were presented to Minister Thompson as well as the rationale for the accommodation.

- The proposal was accepted by Minister Thompson and the regulations brought into force in April 2012.

From: Luke Gleeson [mailto: s.22
Sent: Wednesday, June 20, 2012 1:08 PM
To: Zimmerman, Ted FLNR:EX
Subject: Re: Letter to Residents

Hi Ted,

Thanks for the input. If you feel that this document is consistent with your departments response, then I will release the information to the resident hunting community.

Thanks,

Luke Gleeson

On Wednesday, June 20, 2012, Zimmerman, Ted FLNR:EX wrote:

Hi Luke,

Looks good. You might want to clarify that the opportunity is 24 tags per MU for both the early and late seasons. Also in the middle bullet you mention an effort to "lessen the impact on fish and wildlife" but as we haven't adjusted fishing regulations it might be better to change this just to wildlife.

Hope you're doing well.

Ted

From: Luke Gleeson [mailto: s.22
Sent: Tuesday, June 19, 2012 3:46 PM

To: Zimmerman, Ted FLNR:EX
Subject: Letter to Residents

Hi Ted,

Attached is a letter the TKD Fish and Wildlife Department will be sending out to resident hunters in reference to the decrease in LEH draw opportunity. Please review to ensure we are consistent in delivering the necessary feedback to the resident hunter community.

In touch,

Luke Gleeson

Fish and Wildlife Coordinator

Tsay Keh Dene Band

Prince George: (250) 562-8882

Treaty Office: (250) 993-2127

Treaty Fax: (250) 993-2128

Cel s.22

s.22

--

Fish and Wildlife Coordinator

Tsay Keh Dene Band<

--

Fish and Wildlife Coordinator

Tsay Keh Dene Band
Prince George: (250) 562-8882
Treaty Office: (250) 993-2127
Treaty Fax: (250) 993-2128
Cell: s.22
s.22

From: Heard, Douglas FLNR:EX
To: Zimmerman, Ted FLNR:EX;
Subject: RE: Meeting tomorrow
Date: Wednesday, May 11, 2011 2:07:05 PM
Attachments: LEH BULL MOOSE HUNTING IN GMZ E.docx

Here are the hunting stats

I was going to show these on the screen

From: Zimmerman, Ted FLNR:EX
Sent: Wednesday, May 11, 2011 9:33 AM
To: 'danny case'; 'Luke Gleeson'; Heard, Douglas FLNR:EX; Watts, Glen FLNR:EX; Wilson, Doug J FLNR:EX; s.22 'Ron Fleming s.22
Cc: Bilodeau, Normand G FLNR:EX
Subject: Meeting tomorrow

Good morning,

Thanks again for taking the time to discuss the options around LEH management in MUs 737 to 741 tomorrow. We will be meeting at our boardroom here at 18th Avenue in Prince George; let's plan to start at 9:30 AM (May 12) and I'm hoping we can be done by 3:00 PM at the latest.

Key actions for the meeting will include:

- Review current LEH regulations and hunter harvest statistics

- Discuss hunting activity recorded by Kwadacha and Tsay Keh wildlife monitors during the fall 2010 hunting season

- Consider reconfiguring the LEH seasons to redistribute hunters in time and space, in order to reduce hunter density while still permitting activity

- Open non roaded areas to GOS and come up with a mutually

agreeable definition of ‘non roaded’

If you have any other agenda items please forward them to me and I’ll make sure to include them.

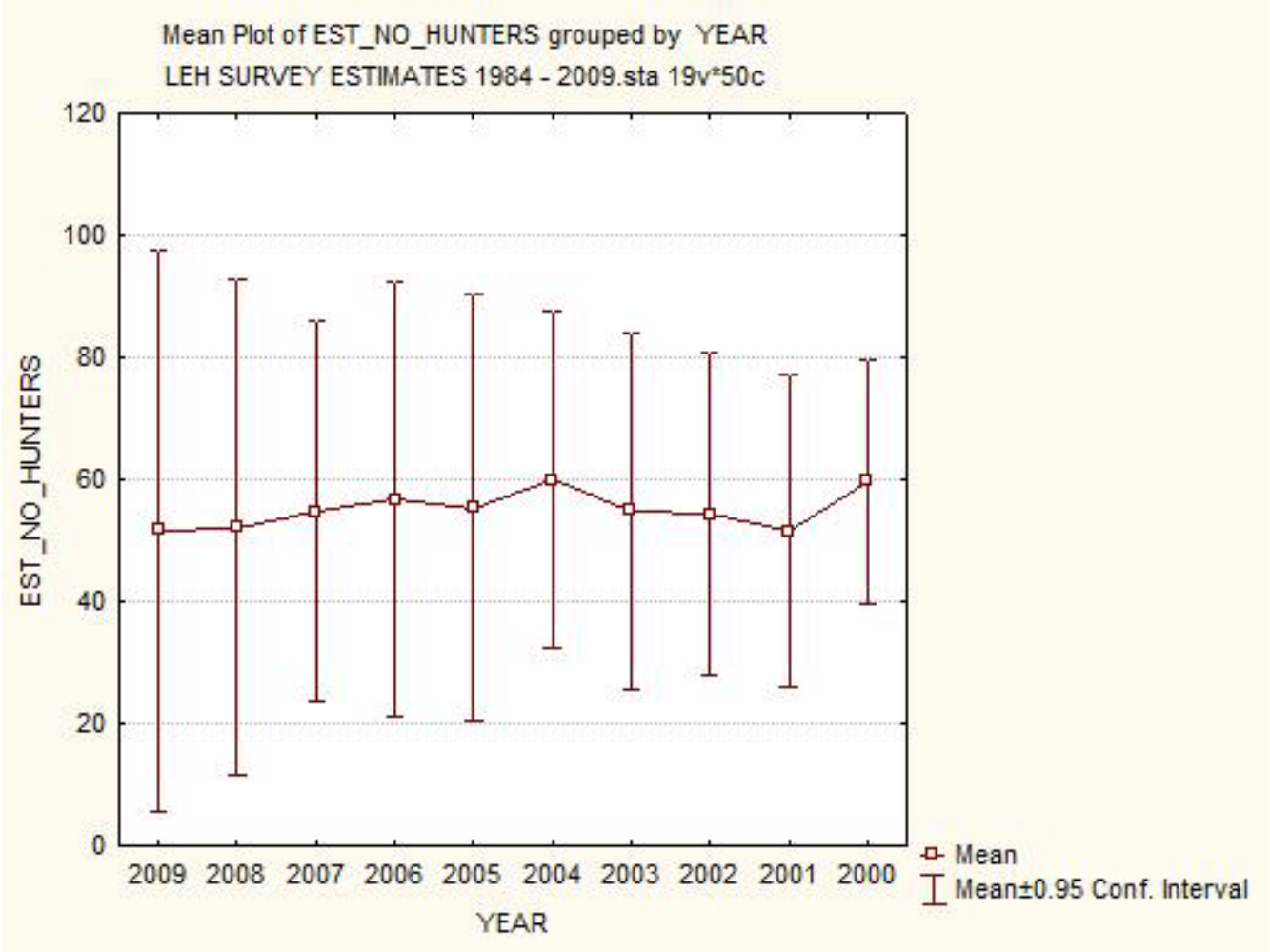
See you tomorrow,

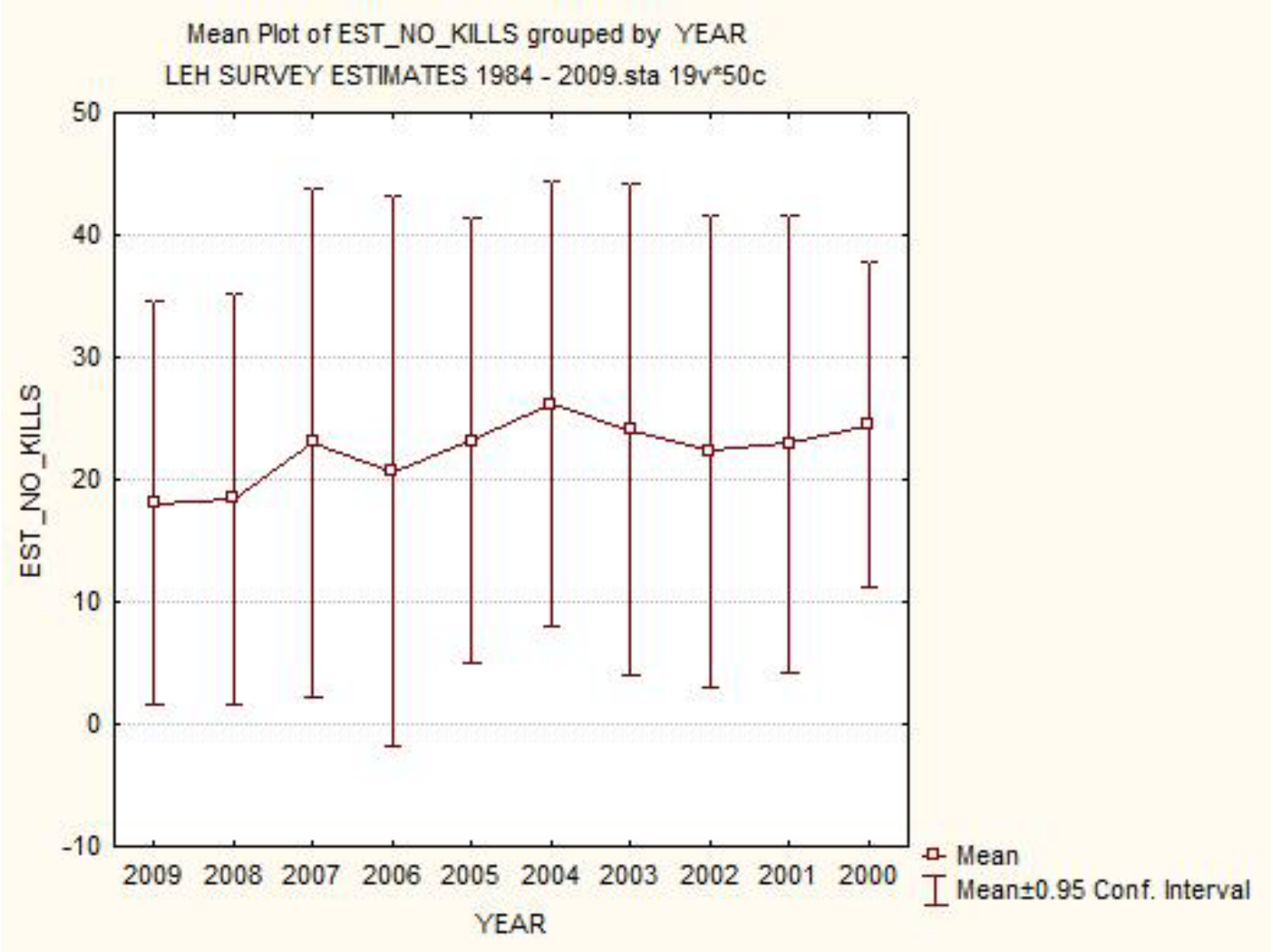
Ted Zimmerman

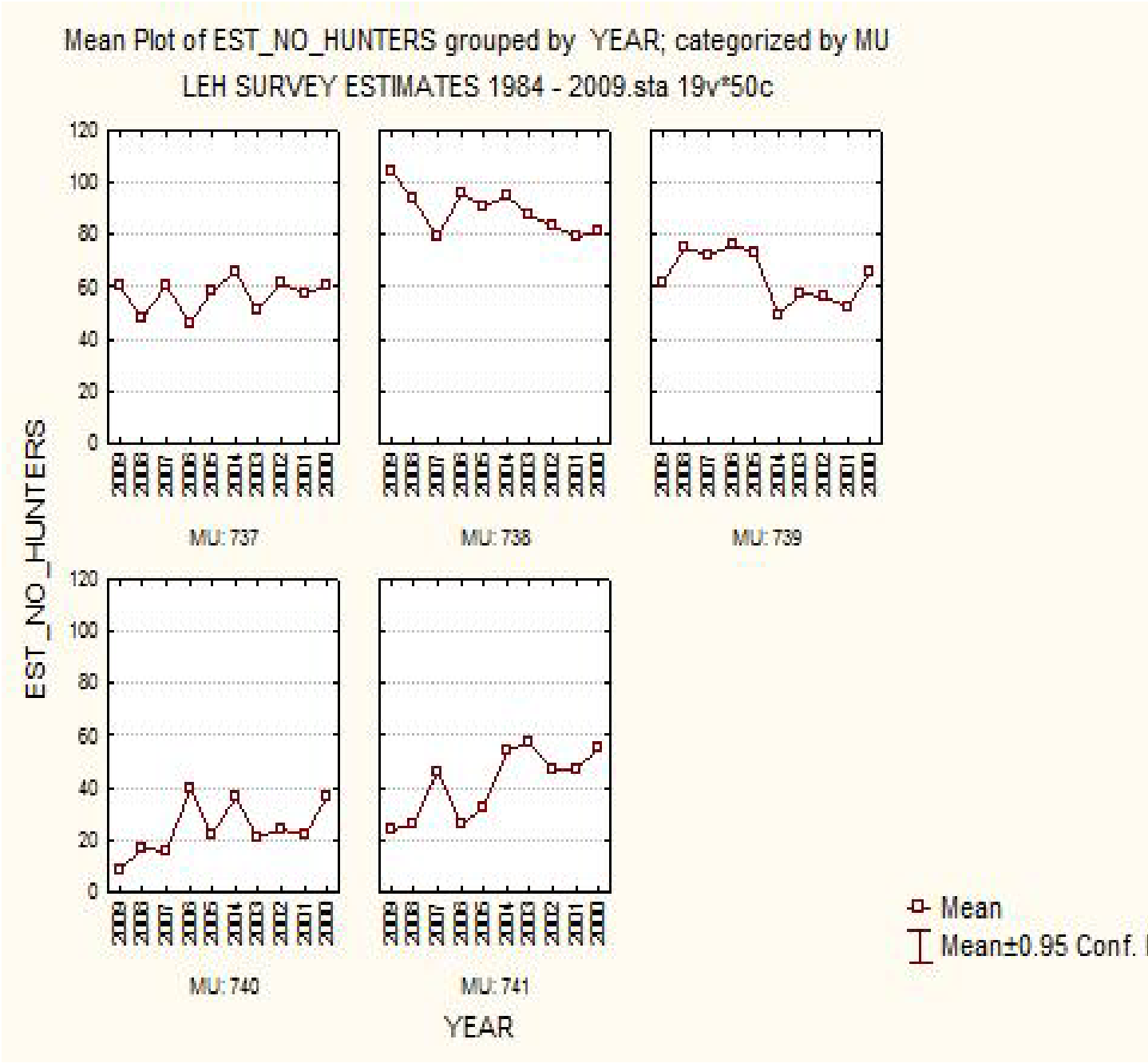
A/ Regional Manager, Omineca Fish and Wildlife
North Central/West Region

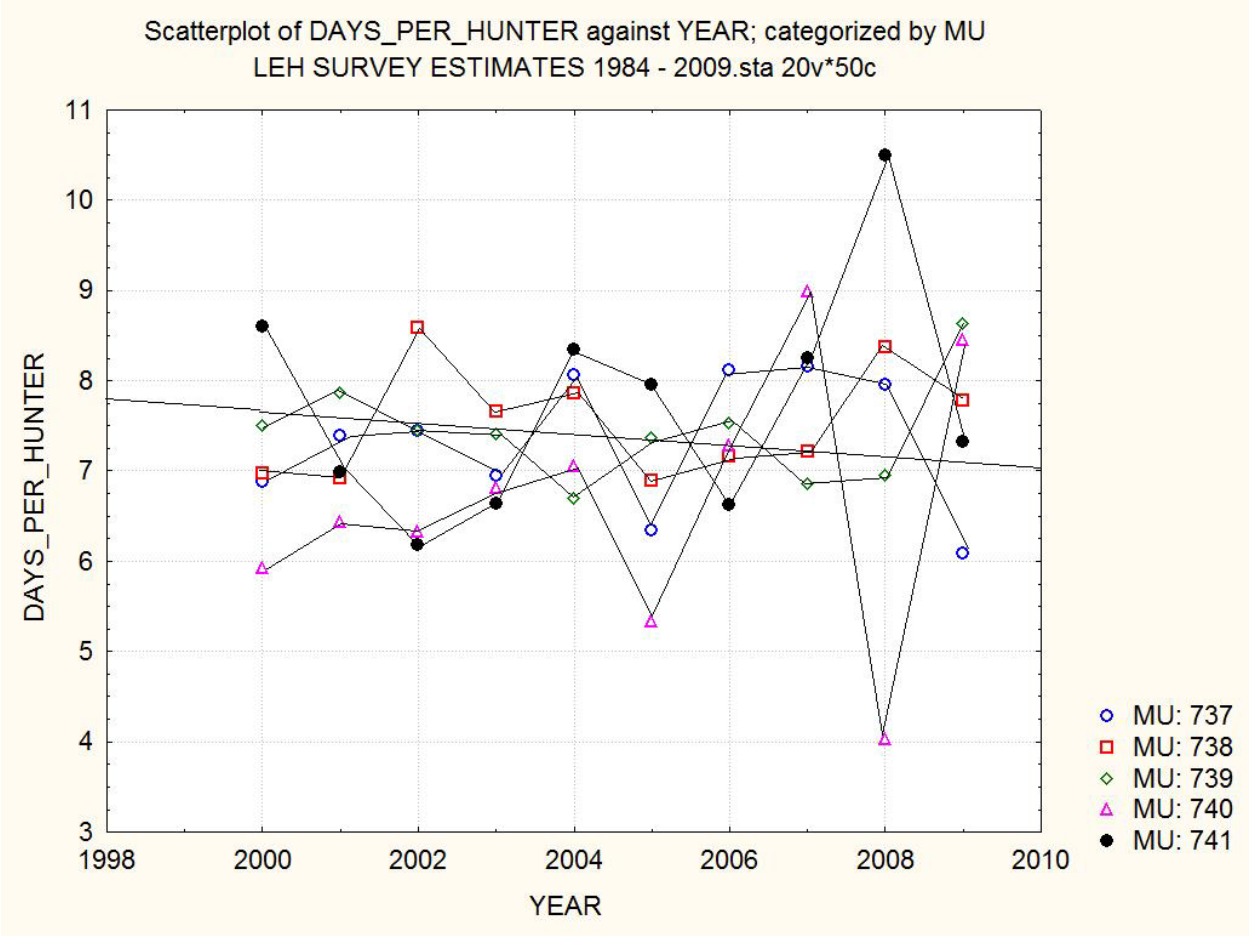
Ministry of Natural Resource Operations
Government of British Columbia
4051 18th Ave. PRINCE GEORGE BC V2N 1B3
250.614.9904
ted.zimmerman@gov.bc.ca

LEH BULL MOOSE HUNTING IN GMZ E




Mean Plot of EST_NO_KILLS grouped by YEAR
LEH SURVEY ESTIMATES 1984 - 2009.sta 19v*50c
EST_NO_KILLS
50
40
30
20
10
0
-10
2009
2008
2007
2006
2005
2004
2003
2002
2001
2000
YEAR
Mean
Mean±0.95 Conf. Interval


Mean Plot of EST_NO_HUNTERS grouped by YEAR; categorized by MU
LEH SURVEY ESTIMATES 1984 - 2009.sta 19v*50c
EST_NO_HUNTERS
MU: 737
MU: 738
MU: 739
MU: 740
MU: 741
YEAR
Mean
Mean±0.95 Conf.



No trend in

- number of hunters
- days per hunter
- number of moose killed
-

Pages 159 through 160 redacted for the following reasons:
- -
s.16

From: Zimmerman, Ted FLNR:EX
To: s.22
Subject: RE: Moose tag allocations for 2012-2013 MU"s 7-37 to 7-41
Date: Tuesday, June 5, 2012 4:29:25 PM

H s.22

Here's a synopsis of how and why we provided a decision recommendation to the Minister for the modifications to the current hunting regulations in MUs 737 to 741.

- In November 2004, the Supreme Court of Canada in the *Haida Nation v. British Columbia (Minister of Forests)* decision set out new legal obligations on government to consult and accommodate First Nations, as appropriate, even where they have not yet proven aboriginal rights or established rights in a treaty. This has significant implications in British Columbia where most First Nations assert but have not yet established in a court, or through a treaty, aboriginal rights and title.
- Courts have recognized the role of government in balancing its legal obligation to consult and accommodate First Nations with other societal interests.
- Government has a legal duty to provide reasonable accommodation, where government can demonstrate that those accommodations substantively address the aboriginal interests raised.
- The Provincial Wildlife Allocation Policy determines priorities for the allocation of wildlife resources. After conservation of a species is addressed, First Nations are afforded the priority to harvest wildlife for food, social and ceremonial purposes. Resident and non resident shares of the harvest are then determined once First Nations needs have been addressed.
- The Kwadacha and Tsay Keh First Nations approached government with an assertion that their aboriginal needs for food were not being met or accommodated, by virtue of their strong prima facie claim to aboriginal rights and title within their traditional territory. Furthermore, both First Nations indicated that their priority to harvest wildlife was not being met under current regulations and was therefore inconsistent with Ministry policy. Both Nations asserted that their ability to acquire moose using preferred means and methods was being compromised under the current regulatory regime.
- In the 1990s, a LEH season was developed in the Tsay Keh and Kwadacha traditional territories to accommodate concerns about resident hunting raised by the two Nations; these seasons were generally under subscribed by resident hunters, within the range of authorizations established by Order in Council.
- Despite the development of the LEH season, several key issues continued to be brought up by both Nations. First, each Nation asserted that resident moose hunting activity along the main lines and spur roads within their traditional territories was resulting in a net down of moose supply, resulting in a

hardship to their community members. Second, resident hunting camps were often located on sites traditionally used by both Nations prior to road development, resulting in conflict between resident hunters and First Nations users. Third, First Nations hunters felt displaced by resident hunting activity and were therefore modifying their hunting behaviour to avoid conflict with non native hunters.

- In 2010, Ministry of Environment staff proposed a Vehicle Access Prohibition regulation to then Minister Penner, for the management units within the two Nations' traditional territories. The regulation was developed over two years of extensive consultation with the two Nations, however it was not approved.

- Following this decision, both Nations continued to look to government to accommodate their interests, in response to the Minister's rejection of the Vehicle Access Prohibition in 2010. The position of the two Nations was that government had yet to invoke meaningful measures that would address asserted infringements of their rights to hunt.

- In 2011 both Nations renewed negotiations with government in an effort to address their concerns. Both indicated that they did not want to eliminate non native hunting, but stated that current harvest rates were continuing to infringe on their priority right to harvest. The outcome of that negotiation was a proposal to reduce the number of LEH permits by 50% in MUs 7-37 to 7-41, in order to reduce the overall moose harvest, and to split the hunting season into two periods to reduce the likelihood of large resident hunting camps occupying traditional use areas.

- This proposal was reviewed by the regional and provincial representatives of the BC Wildlife Federation, who expressed concerns about the reduction in hunting opportunity. These concerns were presented to Minister Thompson as well as the rationale for the accommodation.

- The proposal was accepted by Minister Thompson and the regulations brought into force in April 2012.

Feel free to give me a call at 250 614 9904 if you wish to discuss these points further. I should be around for the rest of the week.

Sincerely,

Ted Zimmerman

Deputy Regional Manager, Omineca Fish and Wildlife
Ministry of Forests, Lands and Natural Resource Operations
Government of British Columbia
4051 18th Ave. PRINCE GEORGE BC V2N 1B3
250.614.9904
ted.zimmerman@gov.bc.ca

From: s.22
Sent: Monday, May 28, 2012 9:58 PM
To: Zimmerman, Ted FLNR:EX
Subject: FW: Moose tag allocations for 2012-2013 MU's 7-37 to 7-41

Hi Ted, I got your phone message - thanks for getting back to me.

You mentioned talking directly about my inquiries below instead of using email. While I welcome the discussion, I would prefer to also have something in writing as it would help to:
- show that there was conclusive data provided in the management decision;
- provide me with documentation in the event that I wish to carry this inquiry further;
- ensure that we get in touch s.22

s.22

Looking forward to your reply,

s.22

From: s.22
To: ted.zimmerman@gov.bc.ca

Subject: Moose tag allocations for 2012-2013 MU's 7-37 to 7-41
Date: Thu, 17 May 2012 20:01:54 -0700

Hello Ted,

s.22

s.22 We noticed of course the 75% reduction in LEH authorizations for bull moose. (not including the 24 offered as a 'second season', since access to these areas is snowed-in after the middle of October). We have some questions and concerns about the change, which we're hoping to have addressed:

Where we hunt there are no roads and we meet no other hunters. We are not allowed to use ATV's where we hunt, so everything is packed on our backs. We assume that not very many people are interested in this type of hunting, or in traveling this far north for their hunt. This amounts to what would seem like very little hunting pressure on the area, but we're also concerned that there may be data indicating a significant drop in population ... is this the case? s.22 s.22 so I would definitely find any data you could provide to be very interesting and informative.

Our other thoughts naturally turned to a possible political motivation, meaning that local communities may have had some input. This also does not jive with our experience. s.22 the Tsay Keh and Kwadacha communities, none of whom have indicated that they have an issue with our hunt. We're aware that Tsay Keh folks were conducting hunter interviews this past season s.22 s.22 and in fact are only traveling through Tsay Keh traditional territory to hunt in Kwadacha territory. When I've asked Kwadacha band members about any concerns with our hunt, the responses include "good luck" and "have fun". We help each other out as needed when we meet on the road, as all good northerners do.

While the Regulations Synopsis has the new numbers in bold font, I cannot find anywhere where there's a rationale provided. I'm hoping that you can shed some light on this Ted.

Thank You,

s.22

Pages 165 through 183 redacted for the following reasons:
- -
s.16

From: Wilson, Doug J FLNR:EX
To: "donnyvansomer@kwadacha.com"; " s.22 "Karl Sturmanis (ksturmanis@tkdb.ca)"; " (JPierre@tkdb.ca)"; Zimmerman, Ted FLNR:EX; Heard, Douglas FLNR:EX; Cadden, Don ENV:EX; Watts, Glen FLNR:EX;
Subject: REVISED AGENDA FOR WEDNESDAY MEETING
Date: Monday, December 17, 2007 3:45:37 PM

We will be meeting at the Kwadacha PG office, K.N.R.A. board room at 202 1157 5th Ave., 1:00 on the 19th. The agenda now looks something like this:

- Consultation on hunting regulations issues: what form does it take?
- Timing of seasons
- Specific area regulations in traditional use areas
- Limited entry hunting
- Guide outfitters
- Mature vs. immature bull harvest
- Levels of harvest and participation by hunters from outside the communities of Tsay Keh and Fort Ware
- Enforcement levels and the C.O.S.
- Monitoring by community residents, and reporting - native and non-native harvest, nos. of hunters, etc.
- Wildlife inventory in traditional territories
- Other concerns related to wildlife and wildlife management
- Timing and frequency of future meetings (e.g., pre-hunting season, post-hunting season, spring?)

Doug Wilson

Douglas J. Wilson, R.P. Bio., P. Ag.
Wildlife Biologist
Ministry of Environment
Environmental Stewardship Division
Omineca Region

Phone / Voice Mail: (250) 614-9926
Fax: (250) 565-6940
Email: Doug.J.Wilson@gov.bc.ca
Snail Mail: MOE, Environmental Stewardship
4051 - 18th Avenue
Prince George BC Canada
V2N 1B3

And for you (fellow) GPS aficionados: 53.90683 -122.79640

"Life is what happens to you while you're busy making other plans" - John Lennon (1980), "Beautiful Boy"

DATE	start and stop TIMES	WPT NO.	TOTAL MOOSE	CALVES	COWS	BULLS	COWS ALONE
12.02.22	9:24	120	5	1	3	1	2
12.02.22		121	3	0	2	1	2
12.02.22		122	1	0	1		1
12.02.22		123	1	0	1		1
12.02.22		124	2	1	1		
12.02.22		124	2	1	1		
12.02.22		124	2	1	1		
12.02.22		124	1	0	1		1
12.02.22		125	1	0	1		1
12.02.22		126	3	0	0	3	
12.02.22		127	3	0	1	2	1
12.02.22		128	1	0	1		1
12.02.22		128	1	0	0	1	
12.02.22		129	2	0	1	1	1
12.02.22		130	2	0	1	1	1
12.02.22		131	3	1	1	1	
12.02.22		132	1	0	1		1
12.02.22		133	2	0	1	1	1
12.02.22		134	1	0	1		1
12.02.22		135	1	0	1		1
12.02.22		136	2	1	1		
12.02.22		137	2	0	1	1	1
12.02.22		138	1	0	1		1
12.02.22		139	0	0	0		
12.02.22		140	3	0	0	3	
12.02.22		141	2	1	1		
12.02.22	12:04	142	0	0	0		
12.02.22	13:05	143	4	2	2		
12.02.22		144	2	1	1		
12.02.22		145	1	0	0	1	
12.02.22		146	1	0	0	1	
12.02.22		147	2	1	1		
12.02.22		148	3	1	2		1
12.02.22		149	1	0	0	1	
12.02.22		150	3	0	3		3
12.02.22		151	2	0	2		2
12.02.22		152	2	0	1	1	1
12.02.22		153	2	0	2		2
12.02.22		154	3	0	2	1	2
12.02.22		155	1	0	0	1	
12.02.22		155	1	0	0	1	
12.02.22		156	3	1	2		1
12.02.22		157	1	0	0	1	
12.02.22		158	2	1	1		

12.02.22	15:05	159	1	0	1		1
12.02.23	9:16	160	0	0	0		
12.02.23		161	2	1	1		
12.02.23		161	4	0	2	2	2
12.02.23		161	3	0	0	3	
12.02.23		162	1	0	1		1
12.02.23		163	1	0	0	1	
12.02.23		164	2	0	2		2
12.02.23		165	0	0	0		
12.02.23		166	1	0	1		1
12.02.23		167	0	0	0		
12.02.23		168	4	0	2	2	2
12.02.23		169	2	1	1		
12.02.23		170	2	0	1	1	1
12.02.23		171	0	0	0		
12.02.23	11:16	172	3	1	2		1
12.02.23	12:45	173	2	0	1	1	1
12.02.23		174	2	0	2		2
12.02.23		175	2	0	0	2	
12.02.23		176	1	0	0	1	
12.02.23		177	2	1	1		
12.02.23		178	4	0	0	4	
12.02.23		179	1	0	0	1	
12.02.23		180	2	1	1		
12.02.23	14:48	181	1	0	1		1
12.02.24	9:53	182	7	0	6	1	6
12.02.24		183	3	0	2	1	2
12.02.24		184	1	0	0	1	
12.02.24		185					
12.02.24		186					
12.02.24		187	1	0	0	1	
12.02.24		188	2	0	2		2
12.02.24		189	4	0	0	4	
12.02.24		190	5	1	2	2	1
12.02.24		191	2	0	1	1	1
12.02.24		192	2	1	1		
12.02.24		193					
12.02.24	11:55	194	1	0	0	1	
TOTALS			**153**	**21**	**78**	**54**	
	CALVES:100 COWS			**69**			
	BULLS:100 COWS					**27**	

COWS WITH A CALF	COVER
1	10
	35
	30
	0
1	40
1	0
1	10
	30
	5
	20
	10
	60
	5
	5
	40
1	5
	5
	5
	45
	50
1	50
	40
	30
	5
1	25
2	15
1	20
	50
	15
1	15
1	15
	15
	10
	5
	30
	20
	20
	0
	10
1	40
	0
1	15

	0
1	0
	0
	5
	15
	20
	15
	10
	20
	15
1	5
	5
1	15
	10
	15
	15
	5
1	0
	35
	20
1	25
	50
	5
	10
	10
	25
	60
	10
1	35
	35
1	35
	65

OTHER

SPIKE-FORK ONE-SIDE ONLY

8 CARIBOU

1 LYNX

COLLARED COW 150.350 WITH CALF FOUND ONLY BY RADIO-TRACKING

BOTH ANTLERS 3PTS

10 wolves; dead moose apparently killed and eaten by wolves

9 horses

6 elk

COLLARED COW 150.340 WITH CALF FOUND ONLY BY RADIO-TRACKING

nothing
COLLARED COW 150.320 WITH CALF FOUND ONLY BY RADIO-TRACKING

one a SPIKE-FORK ONE-SIDE ONLY

3 elk
2 elk

dead moose apparently eated by wolves

UTMs

10 V 378055 6304726
10 V 376917 6298486
10 V 369911 6285699
10 V 365309 6283364
10 V 367393 6282561
10 V 367393 6282561
10 V 367393 6282561
10 V 367393 6282561
10 V 356657 6281631
10 V 354004 6276816
10 V 352866 6275075
10 V 351875 6272043
10 V 351875 6272043
10 V 348589 6272461
10 V 350491 6270301
10 V 350225 6268188
10 V 349984 6266815
10 V 351124 6265149
10 V 349318 6265434
10 V 346845 6264572
10 V 348201 6290665
10 V 357102 6288460
10 V 369427 6287043
10 V 373239 6288215
10 V 374401 6288599
10 V 376320 6290057
10 V 380905 6292320
10 V 376349 6315118
10 V 373648 6324539
10 V 373856 6323224
10 V 379969 6316262
10 V 380588 6315856
10 V 380269 6313412
10 V 384207 6304621
10 V 391563 6294957
10 V 391560 6293959
10 V 396116 6290067
10 V 396741 6286399
10 V 399849 6280535
10 V 404096 6276927
10 V 408395 6281253
10 V 408395 6281253
10 V 411994 6283457
10 V 409811 6285756

10 V 384478 6324271
10 V 356734 6307542
10 V 353202 6305413
10 V 353202 6305413
10 V 353202 6305413
10 V 352442 6305003
10 V 352090 6304376
10 V 352053 6293619
10 V 360113 6287098
10 V 360949 6287455
10 V 365152 6287198
10 V 368333 6288588
10 V 371489 6297511
10 V 371967 6299322
10 V 379351 6297447
10 V 379348 6297448
10 V 370227 6277581
10 V 368058 6275808
10 V 368351 6274180
10 V 377949 6260815
10 V 395778 6237827
10 V 417608 6214310
10 V 405472 6248958
10 V 404529 6255345
10 V 404261 6259881
10 V 443213 6244055
10 V 444601 6242816
10 V 443253 6243455
10 V 434576 6239863
10 V 432349 6240224
10 V 430914 6241634
10 V 431689 6235241
10 V 430980 6233501
10 V 425700 6232667
10 V 425214 6233439
10 V 425088 6233601
10 V 420274 6246925
10 V 420990 6247854

Pages 194 through 200 redacted for the following reasons:
- -
s.13, s.16

1. Number of LEH authorizations allocated for the five MU's from 2007 to 2011.

Hunt Year	MU	NO Authorizations
2007	737	95
2008	737	95
2009	737	95
2010	737	95
2011	737	95
2007	738	150
2008	738	150
2009	738	150
2010	738	150
2011	738	150
2007	739	95
2008	739	95
2009	739	95
2010	739	95
2011	739	95
2007	740	95
2008	740	95
2009	740	95
2010	740	95
2011	740	95
2007	741	95
2008	741	95
2009	741	95
2010	741	95
2011	741	95

NOTE: these are the number of authorizations available rather than the number issued. The number of issued is always higher than the number available because of shared hunts.

2. Number of LEH applications received for each year from 2007 to 2011.

Hunt year	MU	# First Choice Applicants
2007	737	94
2008	737	77
2009	737	57
2010	737	74
2011	737	88
2007	738	399
2008	738	358
2009	738	375
2010	738	469
2011	738	392
2007	739	126
2008	739	125
2009	739	119
2010	739	189
2011	739	130
2007	740	24
2008	740	22
2009	740	13
2010	740	22
2011	740	11
2007	741	45
2008	741	39
2009	741	24
2010	741	19
2011	741	39

3. Number of LEH authorizations that had a successful hunt in each of the above MU's from 2007 to 2011.

YEAR	MU	EST NO KILLS
2007	737	11.6
2008	737	11.2
2009	737	17.4
2010	737	23.9
2007	738	64.3
2008	738	68.3
2009	738	51.1
2010	738	62.1
2007	739	38.5
2008	739	25.3
2009	739	27.6
2010	739	39.6
2007	740	6.9
2008	740	4.3
2009	740	3.4
2010	740	10.5
2007	741	14.6
2008	741	12.8
2009	741	7
2010	741	5.2

NOTE: These are estimates of the number of LEH authorizations that had successful hunts from 2007 through 2010. The 2011 estimates are not yet available.

4. Number of survey questionnaires sent out for each year from 2007 to 2011, excluding the second reminder questionnaire numbers.
5. Number of survey questionnaires responded to/received for each year from 2007 to 2011.

Hunt Year	MU	Surveys Sent	Surveys Received	Response Rate
2007	737	107	59	0.55
2008	737	104	55	0.53
2009	737	108	53	0.49
2010	737	116	43	0.37
2007	738	195	136	0.70
2008	738	197	115	0.58
2009	738	199	125	0.63
2010	738	211	82	0.39
2007	739	124	76	0.61
2008	739	124	86	0.69
2009	739	122	83	0.68
2010	739	131	43	0.33
2007	740	40	22	0.55
2008	740	55	28	0.51
2009	740	55	26	0.47
2010	740	68	25	0.37
2007	741	93	58	0.62
2008	741	69	33	0.48
2009	741	51	30	0.59
2010	741	37	13	0.35

NOTE: In 2010, due to issues with the first year of online survey data (which was conducted in addition to the regular mail-in survey data), the online survey data was not run through the analysis. This is likely the reason for the low response rate in 2010. The 2011 data is not yet available.