SUPPLEMENTAL INFORMATION

MICROHABITAT SELECTION BY WESTERN TOADS (*ANAXYRUS BOREAS*)

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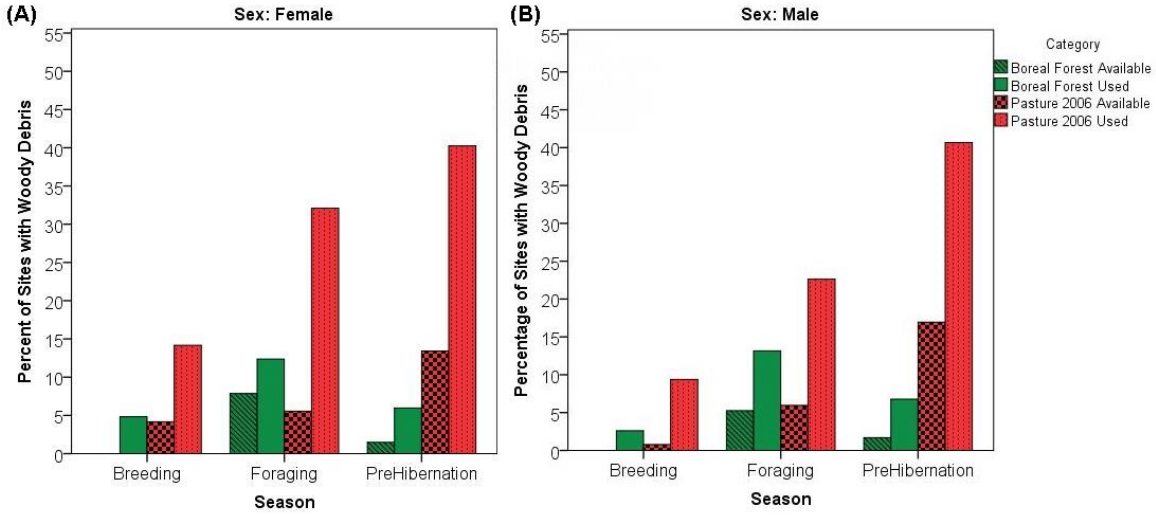
Supplemental Information 1. Percentage of sites that had woody debris for the shelter type for used and available sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*).



Supplemental Information 2 – Predictors of Western Toad (*Anaxyrus boreas*) locations in north central Alberta, 2004–2006. Study areas are Parkland, Pasture, and Boreal Forest. Seasons are Breeding, Foraging, and Pre-hibernation. Models were created for each year, study area, season, and sex combination. Full models contain all microhabitat variables available. Final models excluded microhabitat variables that did not contribute to the model (i.e., AIC score was higher when included). Values are the beta coefficients (SE) from resource selection function models. Signs indicate positive (+ beta coefficient) or negative (- beta coefficient) relationships for continuous variables. For categorical variables, signs indicate selection (+ beta coefficient) or avoidance (- beta coefficient) of the predictor relative to the reference category. Valid sample size indicates the number of samples included in the multivariate models. Vegetation Type is abbreviated as Veg. Type. Statistical significance is indicated by ^{m} ($0.10 > P \geq 0.05$), * ($0.05 > P \geq 0.01$), ** ($0.01 > P \geq 0.001$), and ***($P < 0.001$).

Park 2004 Breeding Season

	Female		Male	
Variable	**Full**	**Final**	**Full**	**Final**
Air temperature	0.64(0.64)		-2.57(30.47)	
Substrate-Mineral soil	NA		C	
Substrate–Organic	A		Reference	
Substrate-Other	B		-0.29(7.83)	
% Woody debris cover	0.04(0.01)***	0.024(0.01)**	0.040(0.07)	0.09(0.06)**
Distance to water	0.03(0.03)		-1.23(1.82)***	-0.89(0.68)***
Veg. Type–Forb	0.25(1.20)		D	
Veg. Type–Graminoid	-2.23(2.54)		D	

Veg. Type–Tree/Shrub	Reference		D	
Veg. Type–NA	-2.23(2.54)		D	
Vegetation height	0.02(0.02)		0.00(0.12)	
Vegetation % cover	A		A	
Valid N	32	34	20	20
AIC	43.23	37.86	12.67	8.51

NA – Not applicable.

A - Excluded because it was correlated (-) with % Woody debris cover.

B - Excluded because it was correlated (+) with % Woody debris cover.

C – Merged with Substrate Type – Other.

D – Veg. Type variables were excluded from the analysis because of issues with Hessian matrix singularity; 39 of the 42 plots were Veg. Type - Graminoid.

Park 2004 Foraging Season

	Female		Male	
Variable	**Full**	**Final**	**Full**	**Final**
Air temperature	0.09(0.20)		-0.07(0.18)	
Substrate-Mineral soil	A		NA	
Substrate–Organic	Reference		C	
Substrate-Other	4.09(2.72)[m]	3.18(1.93)*	D	
% Woody debris cover	0.04(0.02)**	0.04(0.02)***	0.01(0.01)	0.02(0.01)**
Distance to water	-0.03(0.03)	-0.04(0.03)	-0.01(0.03)	
Veg. Type–Forb	0.76(0.72)	0.97(0.58)[m]	-1.29(0.90)	
Veg. Type–Graminoid	-3.44(1.81)*	-3.31(1.60)*	E	
Veg. Type–Tree/Shrub	Reference		Reference	
Veg. Type–NA	B		-1.75(1.62)	
Vegetation height	0.00(0.00)		F	
Vegetation % cover	-0.02(0.02)		-0.03(0.02)[m]	
Valid N	61	63	30	31
AIC	53.82	50.69	40.28	34.81

NA – Not applicable.

A – Merged with Substrate Type – Other.

B – Excluded because of small sample size and issues with Hessian matrix singularity.

C - Excluded because it was correlated (-) with % Woody debris cover.

D - Excluded because it was correlated (+) with % Woody debris cover.

E – Merged with Veg. Type – NA.

F - Excluded because it was correlated (+) with Vegetation % cover.

Park 2004 Pre-hibernation Season

Variable	Female		Male	
	Full	**Final**	**Full**	**Final**
Air temperature	-0.65(0.53)	-0.55(0.40) [m]	0.60(0.69)	
Substrate-Mineral soil	A		A	
Substrate–Organic	Reference		C	
Substrate-Other	0.27(4.30)		D	
% Woody debris cover	0.12(0.10)	0.10(0.06)***	0.08(0.08)*	0.05(0.04) [m]
Distance to water	0.19(0.15)	0.12(0.09)	-0.03(0.10)	
Veg. Type–Forb	0.61(2.50)		E	
Veg. Type–Graminoid	Reference		E	
Veg. Type–Tree/Shrub	-11.90(8.53)**	-8.92(4.94)**	2.45(3.46)	
Veg. Type–NA	B		Reference	
Vegetation height	0.02(0.04)	0.04(0.03)*	-0.02(0.03)	
Vegetation % cover	0.04(0.07)		-0.03(0.03)	-0.03(0.03)
Valid N	24	24	22	24
AIC	24.76	19.38	21.14	15.09

NA – Not applicable.

A – Merged with Substrate Type – Other.

B – Excluded because of small sample size and issues with Hessian matrix singularity.

C - Excluded because it was correlated (-) with % Woody debris cover.

D - Excluded because it was correlated (+) with % Woody debris cover.

E – Merged with Veg. Type – NA.

Pasture 2004 Breeding Season

	Female		Male	
Variable	**Full**	**Final**	**Full**	**Final**
Habitat-Crop/Hay	5.73(5.66)*	5.04(3.72)*	-0.93(2.89)	
Habitat-Other	Reference		Reference	
Air temperature	-0.26(0.19)[m]	-0.22(0.19)	-0.0890.16)	
Substrate-Mineral soil	Reference		Reference	
Substrate–Organic	A	A	A	
Substrate-Other	1.53(1.01)[m]	1.36(0.92)	0.71(3.24)	
% Woody debris cover	0.05(0.03)**	0.06(0.02)***	0.04(0.04) [m]	0.04(0.03)*
Distance to water	-0.02(0.01)*	-0.02(0.01)**	-0.13(0.09) [m]	-0.15(0.08)**
Veg. Type–Forb	-1.13(0.83)		-0.78(1.03)	
Veg. Type–Graminoid	Reference		Reference	
Veg. Type–Tree/Shrub	B		-1.04(1.52)	
Veg. Type–NA	-0.508(1.50)		C	
Vegetation height	0.03(0.03)	0.03(0.03)	-0.01(0.02)	
Vegetation % cover	-0.02(0.01)		0.01(0.02)	
Valid N	53	53	31	31
AIC	54.56	50.97	37.07	25.35

NA – Not applicable.

A – Merged with Substrate Type – Other.

B – Merged with Veg. Type – NA.

C – Excluded because of issues with Hessian matrix singularity. Most toads were in crop/hay fields during this session and woody debris wasn't present in the fields.

Pasture 2004 Foraging Season

	Female		Male	
Variable	**Full**	**Final**	**Full**	**Final**
Habitat-Crop/Hay	-0.84(1.01)		2.10(2.08)	
Habitat-Other	Reference		Reference	
Air temperature	0.01(0.15)		-0.67(0.42)*	-0.45(0.26)*
Substrate-Mineral soil	Reference		Reference	
Substrate–Organic	-0.26(1.29)		-0.28(2.11)	
Substrate-Other	1.67(1.78)		2.45(1.47)[m]	
% Woody debris cover	A		C	
Distance to water	0.02(0.01)*	0.01(0.01)*	0.01(0.01)	
Veg. Type–Forb	-1.57(0.91)[m]	-1.15(0.76)	-1.19(1.12)	
Veg. Type–Graminoid	Reference		Reference	
Veg. Type–Tree/Shrub	-1.58(1.86)		D	
Veg. Type–NA	B		-4.70(2.79)*	-2.25(1.40)[m]
Vegetation height	0.02(0.01)*	0.02(0.01)*	E	
Vegetation % cover	-0.03(0.01)**	-0.03(0.01)***	-0.03(0.02)	-0.02(0.01)*
Valid N	80	80	25	25
AIC	106.48	98.66	35.09	30.27

NA – Not applicable.

A – Excluded because of issues with Hessian matrix singularity. Most toads were in crop/hay fields during this session and woody debris wasn't present in the fields.

B – Merged with Veg. Type - Graminoid.

C – Excluded because it was correlated (+) with Veg. Type NA/Trees/Shrubs. The relationship between toad use and Veg. Type Trees/Shrubs is stronger than toad use and woody debris in this model. Woody debris entered on its own shows a negative relationship ($P = 0.047$). We suspect that this relationship is an artifact caused from a correlation with Veg. Type NA/Trees/Shrubs and toads avoiding trees and shrub for this subset.

D – Merged with Veg. Type – NA.

E - Excluded because it was correlated (+) with Vegetation % cover.

Pasture 2004 Pre-hibernation Season

	Female	
Variable	**Full**	**Final**
Habitat-Crop/Hay	0.93(1.93)	
Habitat-Other	Reference	
Air temperature	0.08(0.30)	
Substrate-Mineral soil	Reference	
Substrate–Organic	-1.33(3.30)	
Substrate-Other	3.86(5.44)	5.07(4.04)[m]
% Woody debris cover	0.18(0.16)[m]	0.15(0.14)[m]
Distance to water	-0.04(0.04)[m]	-0.03(0.02)*
Veg. Type–Forb	-0.52(1.30)	
Veg. Type–Graminoid	Reference	
Veg. Type–Tree/Shrub	A	
Veg. Type–NA	A	
Vegetation height	B	
Vegetation % cover	-0.03(0.02)	-0.03(0.02)[m]
Valid N	22	25
AIC	32.73	29.40

A – Merged with Veg. Type - Graminoid.

B - Excluded because it was correlated (+) with Vegetation % cover.

Boreal Forest 2005 Breeding Season

Variable	Female		Male	
	Full	**Final**	**Full**	**Final**
Microhabitat Selection Model				
Habitat–Subhydric	Reference		Reference	
Habitat–Hygric/subhygric	0.76(2.87)		NA	
Habitat–Mesic/submesic	0.56(1.43)		C	
Habitat–Burnt/Cut	0.97(1.53)		C	
Habitat–Linear Corridor	0.06(1.26)		-2.05(1.20)*	-2.30(1.07)**
Habitat–Other	1.36(1.88)		-0.50(1.63)	
Air temperature	-0.07(0.07)		-0.04(0.06)	
Substrate-Mineral soil	A	A	A	
Substrate–Organic	-0.08(0.76)		2.84(1.06)**	2.25(0.90)**
Substrate–Peat	Reference		Reference	
Substrate-Other	-1.99(1.51)	-2.27(1.30)*	D	
Soil moisture	0.01(0.02)		0.01(0.01)	
% Woody debris cover	0.06(0.02)**	0.06(0.02)***	0.03(0.02)	0.03(0.02)*
Distance to water	-0.00(0.01)		-0.03(0.04)	
Veg. Type–Forb	-0.48(0.96)		0.03(0.84)	
Veg. Type–Graminoid	-0.47(0.82)		0.37(0.53)	
Veg. Type–Tree/Shrub	Reference		Reference	
Veg. Type–NA	-3.19(2.21)[m]	-3.11(1.59)*	-2.93(1.78)*	-3.02(1.82)*
Herbaceous height	-0.00(0.02)		-0.01(0.02)	

Herbaceous % dead cover	0.04(0.03)[m]	0.03(0.02)[m]	-0.01(0.01)	
Herbaceous % live cover	-0.01(0.01)		0.01(0.02)	
Shrub height	0.01(0.01)	0.02(0.01)[m]	0.00(0.01)	
Shrub % dead cover	0.00(0.02)		0.00(0.01)	
Shrub % live cover	-0.00(0.02)		E	
Canopy cover	-0.03(0.02)[m]	-0.03(0.01)**	-0.02(0.01)*	-0.02(0.01)*
Valid N	79	83	114	115
AIC	113.60	91.64	145.54	129.22
Shelter Selection Model				
Shelter-Open	Reference		Reference	
Shelter-Dead vegetation	-1.77(0.76)**		-1.39(0.46)**	
Shelter-Thick vegetation	1.23(0.66)*		0.14(0.35)	
Shelter-Tunnel/Wood	B		B	
Shelter - NA	1.13(0.81)		1.53(0.68)*	
Valid N	83		115	
AIC	105.58		145.37	

NA – Not applicable.

A – Merged with Substrate Type – Other.

B – Merged with Shelter Type – NA

C – Merged with Habitat Type – Other.

D – Excluded because it was correlated with Habitat Type – Linear Corridor (+) and also Soil Moisture (-).

E – Excluded because it was correlated (+) with Shrub Height.

Boreal Forest 2005 Foraging Season

Variable	Female		Male	
	Full	**Final**	**Full**	**Final**
	Microhabitat Selection Model			
Habitat–Subhydric	0.23(1.43)		Reference	
Habitat–Hygric/subhygric	-3.04(1.66)[m]		-0.17(2.00)	
Habitat–Mesic/submesic	Reference		-0.17(0.90)	
Habitat–Burnt/Cut	NA		-2.75(2.57)	
Habitat–Linear Corridor	-0.24(1.20)		-3.21(1.45)*	-2.21(1.08)*
Habitat–Other	NA		NA	
Air temperature	-0.01(0.08)		-0.02(0.07)	
Substrate-Mineral soil	A		1.878(1.01)*	1.34(0.86)
Substrate–Organic	A		1.11(0.67)[m]	0.41(0.45)
Substrate–Peat	-0.66(0.65)		Reference	Reference
Substrate-Other	Reference		B	B
Soil moisture	-0.02(0.02)	-0.02(0.01)[m]	0.01(0.01)	
% Woody debris cover	0.03(0.01)**	0.03(0.01)**	0.02(0.01)[m]	0.02(0.01)*
Distance to water	0.01(0.01)		-0.01(0.01)	
Veg. Type–Forb	-0.45(0.82)		-0.23(0.77)	
Veg. Type–Graminoid	0.20(0.85)		-0.35(0.80)	
Veg. Type–Tree/Shrub	Reference		Reference	
Veg. Type–NA	B		0.79(1.38)	

Herbaceous height	-0.02(0.02)	-0.02(0.01)	-0.02(0.02)	
Herbaceous % dead cover	0.00(0.02)		-0.02(0.02)	
Herbaceous % live cover	-0.02(0.01)	-0.02(0.01)[m]	-0.00(0.01)	
Shrub height	0.00(0.01)		C	
Shrub % dead cover	0.01(0.02)		0.03(0.01)*	0.02(0.01)*
Shrub % live cover	0.02(0.02)		0.04(0.02)**	0.03(0.01)***
Canopy cover	-0.01(0.01)	-0.02(0.01) [m]	-0.01(0.01)	
Valid N	80	82	110	113
AIC	113.12	98.60	140.64	134.06
Shelter Selection Model				
Shelter-Open	Reference		Reference	
Shelter-Dead vegetation	-0.65(0.68)		0.33(0.80)	
Shelter-Thick vegetation	-0.41(0.40)		0.94(0.34)**	
Shelter-Tunnel/Wood	0.62(0.59)		1.61(0.51)**	
Shelter - NA	B		0.47(1.04)	
Valid N	89		114	
AIC	124.17		151.16	

NA – Not applicable.

A – Merged with Substrate Type – Other.

B – Excluded because of small sample size and issues with Hessian matrix singularity.

C – Excluded because it was correlated (+) with Shrub % live cover.

Boreal Forest 2005 Pre-hibernation Season

Variable	Female		Male	
	Full	**Final**	**Full**	**Final**
Microhabitat Selection Model				
Habitat–Subhydric	4.24(6.13)		Reference	
Habitat–Hygric/subhygric	Reference		B	
Habitat–Mesic/submesic	-1.86(2.85)		B	
Habitat–Burnt/Cut	4.94(6.98)		B	
Habitat–Linear Corridor	6.20(4.93)		B	
Habitat–Other	NA		-0.42(1.67)	
Air temperature	-1.15(0.42)***	-0.69(0.21)***	-0.05(0.16)	
Substrate-Mineral soil	-2.90(4.66)		C	
Substrate–Organic	2.44(1.90)	2.30(0.84)**	0.23(0.71)	
Substrate–Peat	Reference		Reference	
Substrate-Other	A		NA	
Soil moisture	-0.00(0.03)		-0.02(0.03)	
% Woody debris cover	0.10(0.05)**	0.04(0.02)**	0.04(0.04)	0.06(0.04)[m]
Distance to water	0.03(0.04)		-0.13(0.07)**	-0.11(0.05)**
Veg. Type–Forb	1.27(1.40)		-0.52(1.25)	
Veg. Type–Graminoid	0.52(1.39)		1.02(1.03)	
Veg. Type–Tree/Shrub	Reference		Reference	
Veg. Type–NA	-0.90(2.46)		A	
Herbaceous height	0.03(0.03)		-0.01(0.02)	

Herbaceous % dead cover	0.06(0.05)		-0.01(0.02)	
Herbaceous % live cover	-0.02(0.03)		-0.02(0.02)	-0.03(0.01)**
Shrub height	0.04(0.03)	0.04(0.02)**	-0.01(0.02)	
Shrub % dead cover	0.01(0.04)		0.06(0.05)	
Shrub % live cover	0.02(0.02)		0.01(0.02)	
Canopy cover	0.02(0.02)		0.01(0.02)	
Valid N	60	66	58	59
AIC	74.44	59.65	83.05	66.67
Shelter Selection Model				
Shelter-Open	Reference		Reference	
Shelter-Dead vegetation	0.50(1.05)		D	
Shelter-Thick vegetation	0.92(0.62)		0.11(0.64)	
Shelter-Tunnel/Wood	3.75(1.07)***		2.78(0.77)***	
Shelter - NA	NA		A	
Valid N	67		59	
AIC	60.99		55.10	

NA – Not applicable.

A – Excluded because of small sample size and issues with Hessian matrix singularity.

B – Merged with Habitat Type – Other.

C – Merged with Substrate Type – Organic

D – Merged with Shelter Type – Tunnel/Wood

Pasture 2006 Breeding Season

Variable	Female		Male	
	Full	Final	Full	Final
Microhabitat Selection Model				
Habitat–Subhydric	4.66(4.25)		A	
Habitat–Hygric/subhygric	0.45(1.86)		A	
Habitat–Mesic/submesic	2.16(1.37)		A	
Habitat–Upland shrub	NA		NA	
Habitat–Crop/hay	A	A	A	
Habitat–Pasture	Reference		-0.85(0.71)	-0.89(0.62)
Habitat–Pond edge	A	A	A	
Habitat–Other	4.70(1.72)***	3.79(1.46)***	Reference	
Air temperature	-0.08(0.07)		-0.33(0.10)***	-0.35(0.10)***
Substrate-Mineral soil	Reference		Reference	
Substrate–Organic	-1.25(1.65)		-0.40(1.03)	
Substrate-Other	B		NA	
Soil moisture	0.04(0.02)**	0.04(0.01)***	D	
% Woody debris cover	0.06(0.03)**	0.06(0.02)***	0.03(0.03)	0.04(0.03)
Distance to water	-0.02(0.01)		-0.01(0.02)	
Veg. Type–Forb	-0.26(0.55)		-1.53(0.69)*	-1.39(0.62)*
Veg. Type–Graminoid	Reference		Reference	
Veg. Type–Tree/Shrub	0.47(0.95)		-1.03(0.99)	
Veg. Type–NA	B		B	

Herbaceous height	0.05(0.03)*	0.03(0.02)[m]	0.07(0.03)**	0.06(0.02)**
Herbaceous % dead cover	-0.01(0.01)		-0.07(0.03)	
Herbaceous % live cover	-0.02(0.01)		-0.01(0.01)	
Shrub height	C		E	
Shrub % dead cover	0.04(0.06)		0.03(0.05)	
Shrub % live cover	-0.02(0.03)		E	
Canopy cover	-0.06(0.02)***	-0.03(0.01)**	0.03(0.02)[m]	0.03(0.02)[m]
Valid N	105	107	112	112
AIC	101.20	89.07	97.45	87.32
Shelter Selection Model				
Shelter-Open	-2.18(0.56)***		-4.50(1.01)***	
Shelter-Dead vegetation	-1.27(0.70) [m]		-2.30(1.35) [m]	
Shelter-Thick vegetation	-1.87(0.59)***		F	
Shelter-Tunnel/Wood	Reference		Reference	
Valid N	120		128	
AIC	147.76		67.49	

NA – Not applicable.

A – Merged with Habitat Type – Other.

B – Excluded because of small sample size and issues with Hessian matrix singularity.

C – Excluded because it was correlated (+) with shrub % live cover.

D – Excluded because it was correlated (-) with Habitat – Pasture.

E – Excluded because it was correlated (+) with Veg. Type – Tree/Shrub.

F – Merged with Shelter – Tunnel/Wood.

Pasture 2006 Foraging Season

Variable	Female		Male	
	Full	**Final**	**Full**	**Final**
Microhabitat Selection Model				
Habitat–Subhydric	-1.99(1.10)*	-1.74(0.79)*	A	
Habitat–Hygric/subhygric	Reference		Reference	
Habitat–Mesic/submesic	0.22(0.67)		-1.15(1.73)	
Habitat–Upland shrub	NA		A	
Habitat–Crop/hay	0.53(1.41)		-0.34(2.95)	
Habitat–Pasture	-1.86(1.39)	-1.38(0.84)[m]	A	
Habitat–Pond edge	A		3.36(3.01)	4.21(2.54)*
Habitat–Other	-0.94(1.06)		-1.87(1.37)	
Air temperature	-0.16(0.07)*	-0.12(0.06)*	-0.19(0.09)*	-0.23(0.08)**
Substrate-Mineral soil	Reference		Reference	
Substrate–Organic	0.35(0.70)		-0.50(1.45)	
Substrate-Other	-0.43(1.50)		B	
Soil moisture	-0.01(0.01)		-0.02(0.02)	-0.03(0.02)[m]
% Woody debris cover	0.03(0.01)**	0.03(0.01)***	0.05(0.02)**	0.04(0.01)***
Distance to water	-0.01(0.01)*	-0.01(0.00)*	-0.00(0.01)	
Veg. Type–Forb	-0.04(0.40)		-0.38(0.59)	
Veg. Type–Graminoid	Reference		Reference	
Veg. Type–Tree/Shrub	0.25(0.56)		-0.15(1.20)	
Veg. Type–NA	-1.34(1.65)		-1.57(1.90)	

Herbaceous height	0.03(0.01)*	0.03(0.01)**	0.06(0.02)***	0.06(0.02)***
Herbaceous % dead cover	0.01(0.01)		0.02(0.02)	
Herbaceous % live cover	-0.01(0.01)	-0.02(0.01)**	-0.04(0.01)**	-0.04(0.01)***
Shrub height	C		0.008(0.033)	
Shrub % dead cover	0.06(0.04) [m]	0.04(0.03)[m]	0.09(0.09)	0.12(0.07)*
Shrub % live cover	C		0.01(0.03)	
Canopy cover	0.00(0.01)		0.03(0.02)[m]	0.02(0.01)*
Valid N	134	157	112	116
AIC	159.48	153.12	105.70	91.53
Shelter Selection Model				
Shelter-Open	-3.13(0.53)***		-3.87(0.60)***	
Shelter-Dead vegetation	-1.93(0.72)**		-2.15(0.73)**	
Shelter-Thick vegetation	-2.08(0.49)***		-2.43(0.53)***	
Shelter-Tunnel/Wood	Reference		Reference	
Valid N	162		168	
AIC	162.82		130.88	

NA – Not applicable.

A – Merged with Habitat Type – Other.

B – Excluded because of small sample size and issues with Hessian matrix singularity.

C – Excluded because it was correlated (+) with Veg. Type – Tree/Shrub.

Pasture 2006 Pre-hibernation Season

Variable	Female		Male	
	Full	**Final**	**Full**	**Final**
Microhabitat Selection Model				
Habitat–Subhydric	A		A	
Habitat–Hygric/subhygric	A		A	
Habitat–Mesic/submesic	2.51(2.02)		A	
Habitat–Upland shrub	A		-1.89(1.97)	
Habitat–Crop/hay	NA		A	
Habitat–Pasture	A		A	
Habitat–Pond edge	NA		A	
Habitat–Other	Reference		Reference	
Air temperature	-1.37(0.62)**	-0.82(0.36)**	0.05(0.21)	
Substrate-Mineral soil	Reference		Reference	
Substrate–Organic	2.12(1.55)		-0.61(1.15)	
Substrate-Other	B		B	
Soil moisture	-0.03(0.03)		0.00(0.01)	
% Woody debris cover	0.17(0.07)***	0.11(0.04)***	0.01(0.01)	0.02(0.01)*
Distance to water	0.01(0.03)		0.00(0.02)	
Veg. Type–Forb	-4.34(1.94)**	-2.40(1.04)**	-1.19(0.82)	
Veg. Type–Graminoid	Reference		Reference	
Veg. Type–Tree/Shrub	-3.45(1.66)*	-1.41(0.87) [m]	-1.07(0.93)	
Veg. Type–NA	B		NA	

Herbaceous height	0.03(0.05)		0.05(0.03)*	0.03(0.02)[m]
Herbaceous % dead cover	-0.01(0.04)		-0.04(0.02)[m]	
Herbaceous % live cover	-0.01(0.03)		-0.01(0.02)	
Shrub height	-0.04(0.02)*	-0.02(0.01)	C	
Shrub % dead cover	0.08(0.04)*	0.07(0.04)*	0.00(0.03)	
Shrub % live cover	0.14(0.06)**	0.07(0.04)*	0.03(0.03)	
Canopy cover	0.03(0.02)	0.02(0.02)[m]	0.09(0.04)***	0.06(0.02)***
Valid N	77	80	55	57
AIC	64.16	60.11	71.73	57.12
Shelter Selection Model				
Shelter-Open	-4.57(1.08)***		-2.61(0.80)***	
Shelter-Dead vegetation	-2.53(0.74)***		-2.63(0.79)***	
Shelter-Thick vegetation	-3.09(0.95)***		-1.33(0.64)*	
Shelter-Tunnel/Wood	Reference		Reference	
Valid N	82		59	
AIC	77.05		59.54	

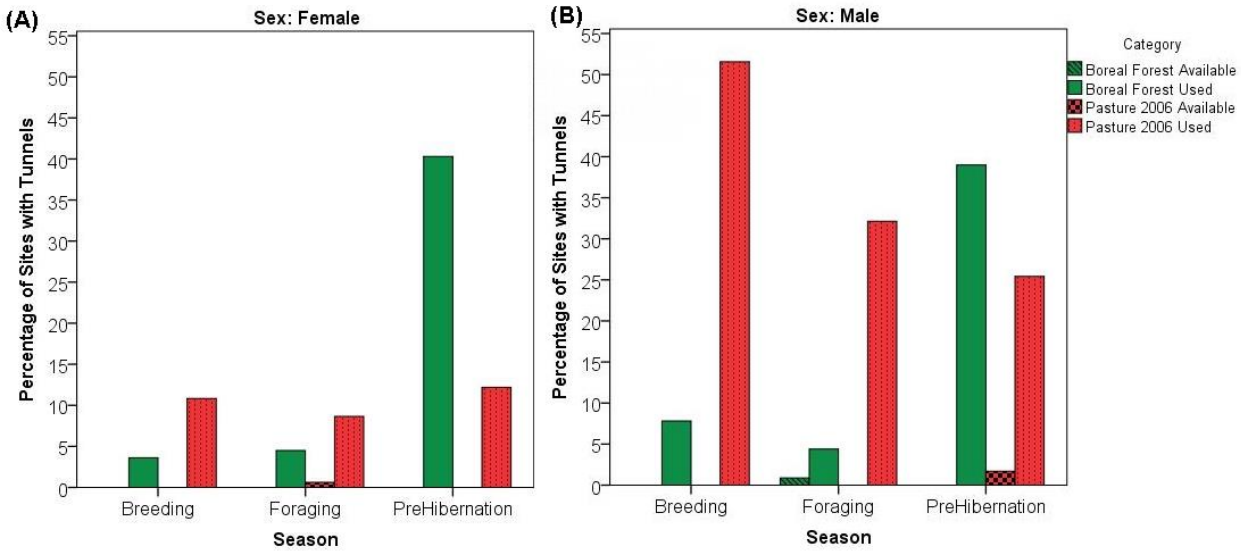
NA – Not applicable.

A – Merged with Habitat Type – Other.

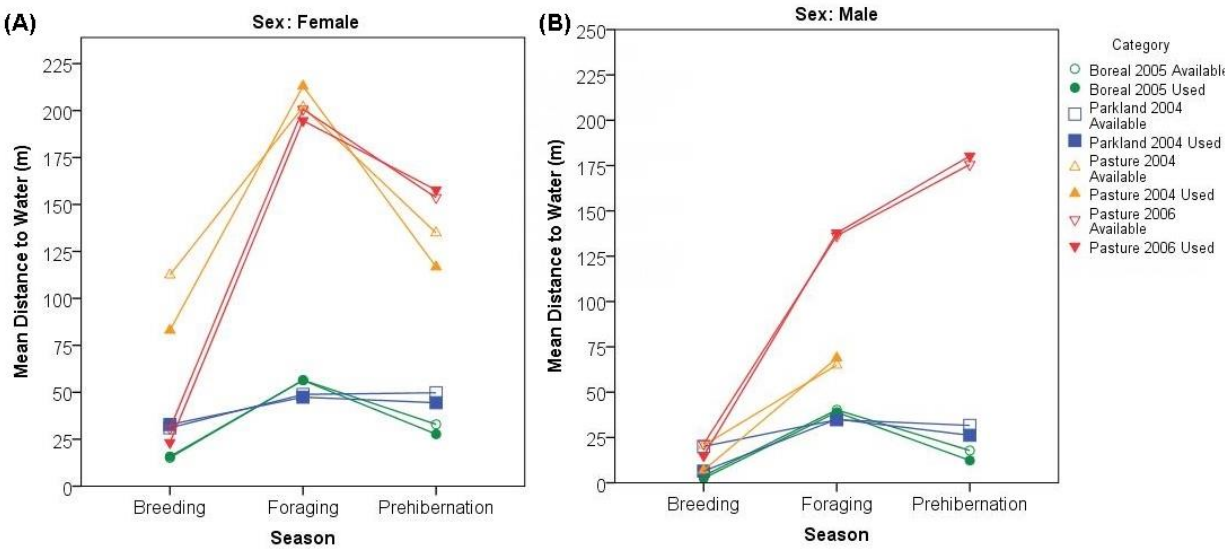
B – Excluded because of small sample size and issues with Hessian matrix singularity.

C – Excluded because it was correlated (+) with shrub % live cover.

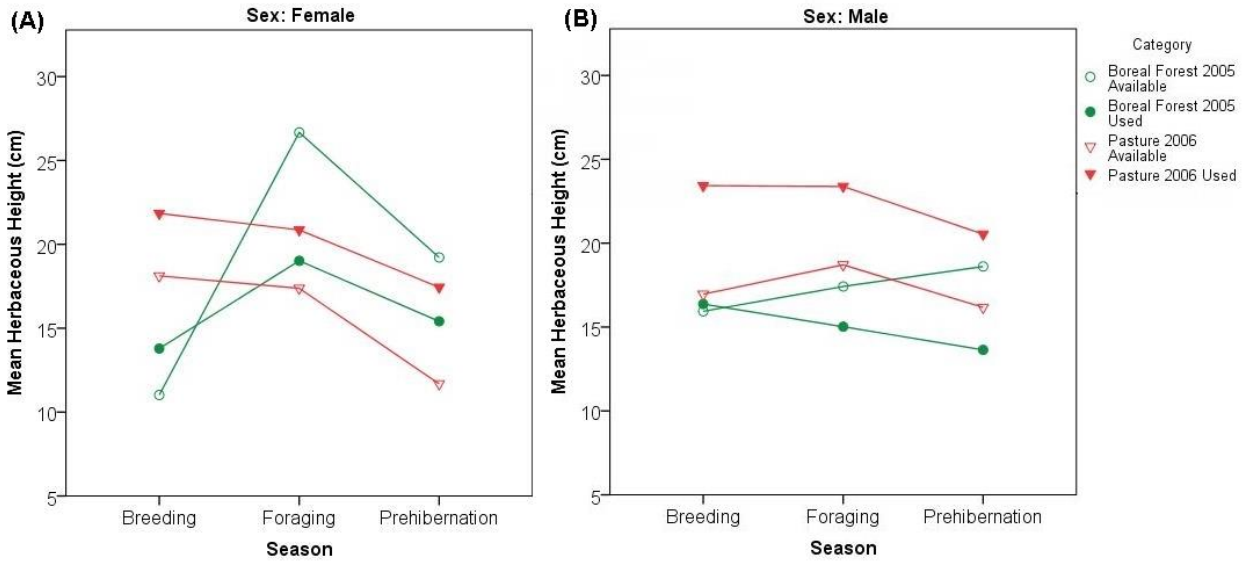
Supplemental Information 3. Percentage of sites that had tunnels for the shelter type for used and available sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*).



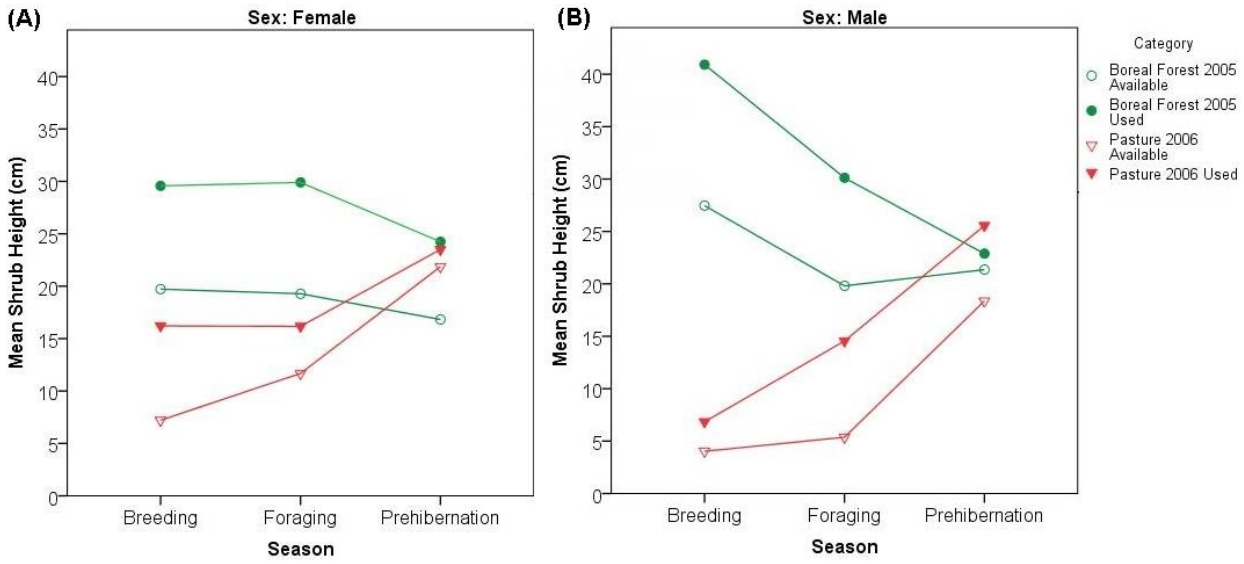
Supplemental Information 4. Mean distance to water (m) for used (filled symbols) and available (hollow symbols) sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*). Water included any water source large enough to cover a toad's pelvic patch. Lines connecting points simply serve to link data; no trends are implied.



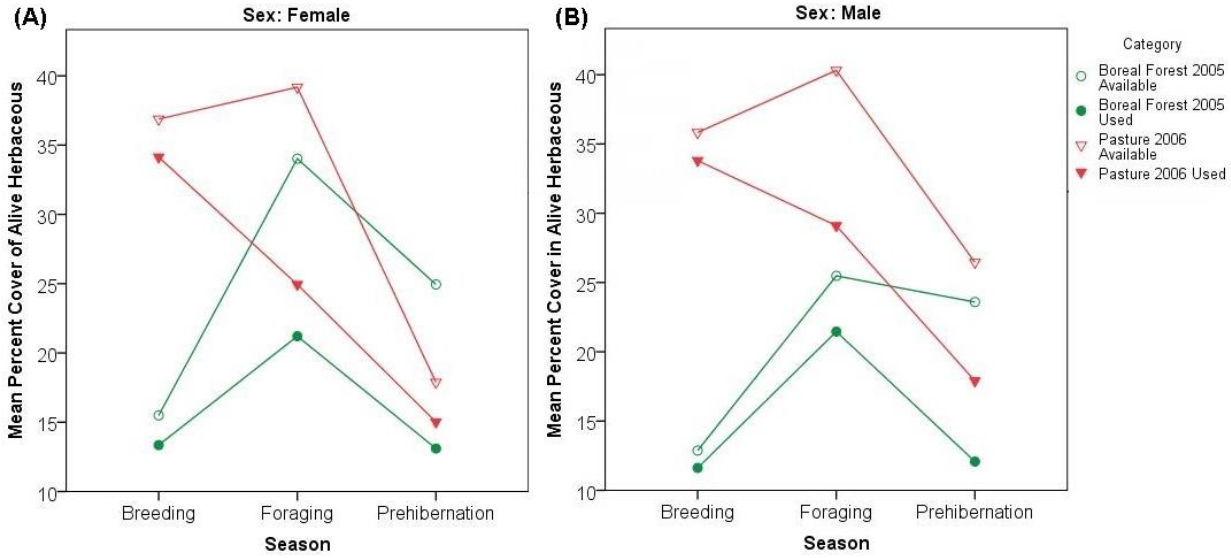
Supplemental Information 5. Mean herbaceous vegetation height (cm) for used (filled symbols) and available (hollow symbols) sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*). Lines connecting points simply serve to link data; no trends are implied.



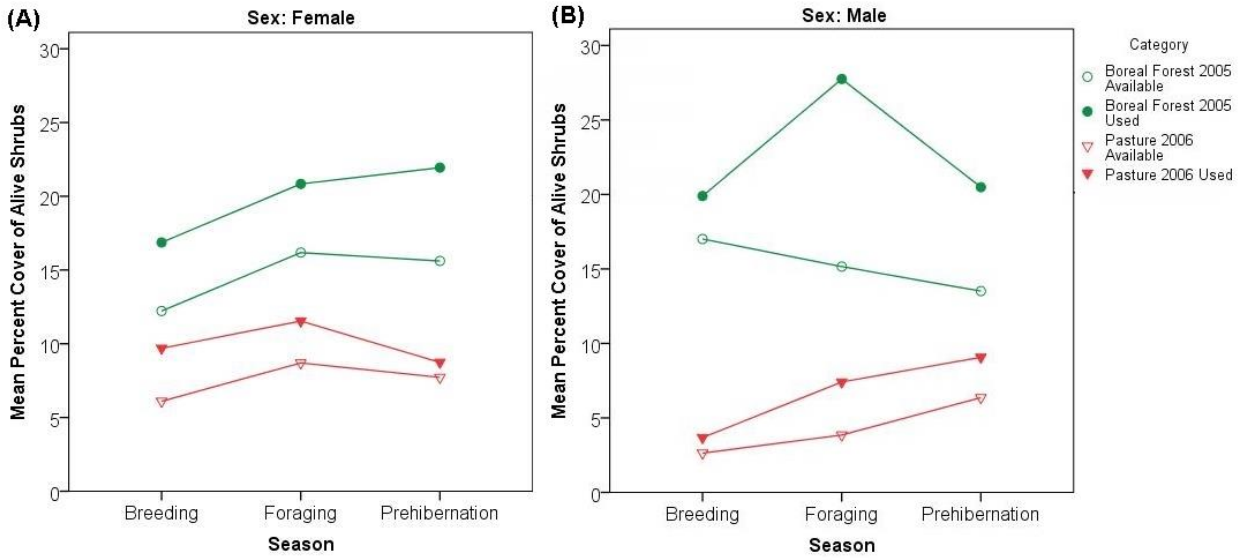
Supplemental Information 6. Mean shrub height (cm) for used (filled symbols) and available (hollow symbols) sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*). Lines connecting points simply serve to link data; no trends are implied.



Supplemental Information 7. Mean percentage cover of live herbaceous vegetation for used (filled symbols) and available (hollow symbols) sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*). Lines connecting points simply serve to link data; no trends are implied.



Supplemental Information 8. Mean percentage cover of live shrub for used (filled symbols) and available (hollow symbols) sites among study areas and seasons for female (A) and male (B) Western Toads (*Anaxyrus boreas*). Lines connecting points simply serve to link data; no trends are implied.



Supplemental Information 9. Frequency tables for the categorical variable Vegetation Type for Western Toad (*Anaxyrus boreas*) micro-habitat use in north-central Alberta, 2004–2006. Study areas are Parkland, Pasture, and Boreal Forest. Seasons are Breeding, Foraging, and Pre-Hibernation (Pre-Hib). H or R indicates used habitat (H) vs. available habitat (R).

A) Parkland 2004

Analysis Categories			**Vegetation Types**			
Season	**Sex**	**H or R**	**Forbs**	**Graminoids**	**Trees/ Shrubs**	**NA**
Breeding	Female	H	6	16	11	1
Breeding	Female	R	9	15	9	1
Breeding	Male	H	0	20	0	1
Breeding	Male	R	1	19	1	0
Foraging	Female	H	32	3	27	1
Foraging	Female	R	23	9	31	0
Foraging	Male	H	11	4	13	5
Foraging	Male	R	15	6	12	0
PreHib	Female	H	9	7	10	1
PreHib	Female	R	6	7	14	0
PreHib	Male	H	1	9	8	7
PreHib	Male	R	2	12	11	0

B) Pasture 2004

Analysis Categories			Vegetation Types			
Season	**Sex**	**H or R**	**Forbs**	**Graminoids**	**Trees/ Shrubs**	**NA**
Breeding	Female	H	17	23	0	18
Breeding	Female	R	25	24	4	5
Breeding	Male	H	20	10	1	1
Breeding	Male	R	15	11	6	0
Foraging	Female	H	30	48	1	1
Foraging	Female	R	34	44	2	0
Foraging	Male	H	12	10	2	2
Foraging	Male	R	10	9	6	1
PreHib	Female	H	9	10	4	2
PreHib	Female	R	10	14	1	0

C) Boreal Forest 2005

Analysis Categories			Vegetation Types			
Season	**Sex**	**H or R**	**Forbs**	**Graminoids**	**Trees/ Shrubs**	**NA**
Breeding	Female	H	11	31	39	2
Breeding	Female	R	18	24	33	8
Breeding	Male	H	6	55	53	1
Breeding	Male	R	10	48	45	12
Foraging	Female	H	21	25	39	4
Foraging	Female	R	21	34	34	0
Foraging	Male	H	12	31	66	5
Foraging	Male	R	21	46	44	3
PreHib	Female	H	8	16	39	4
PreHib	Female	R	11	23	32	1
PreHib	Male	H	2	19	36	2
PreHib	Male	R	7	26	26	0

D) Pasture 2006

Analysis Categories			Vegetation Types			
Season	**Sex**	**H or R**	**Forbs**	**Graminoids**	**Trees/ Shrubs**	**NA**
Breeding	Female	H	21	74	25	0
Breeding	Female	R	41	64	13	2
Breeding	Male	H	18	95	8	7
Breeding	Male	R	34	85	8	1
Foraging	Female	H	42	72	44	4
Foraging	Female	R	43	94	22	3
Foraging	Male	H	44	90	29	5
Foraging	Male	R	50	109	6	3
PreHib	Female	H	10	39	29	4
PreHib	Female	R	20	37	24	1
PreHib	Male	H	7	29	23	0
PreHib	Male	R	12	34	13	0

Supplemental Information 10. Frequency tables for the categorical variable Substrate Type for Western Toad (*Anaxyrus boreas*) micro-habitat use in north-central Alberta, 2004–2006. Study areas are Parkland, Pasture, and Boreal Forest. Seasons are Breeding, Foraging, and Pre-Hibernation (Pre-Hib). H or R indicates used habitat (H) vs. available habitat (R).

A) Parkland 2004

Analysis Categories			**Substrate Types**		
Season	**Sex**	**H or R**	**Mineral Soils**	**Organic**	**Other**
Breeding	Female	H	0	25	9
Breeding	Female	R	0	31	3
Breeding	Male	H	2	16	3
Breeding	Male	R	3	17	1
Foraging	Female	H	1	44	18
Foraging	Female	R	1	62	0
Foraging	Male	H	0	19	14
Foraging	Male	R	0	31	2
PreHib	Female	H	3	15	9
PreHib	Female	R	1	26	0
PreHib	Male	H	4	6	15
PreHib	Male	R	5	20	0

B) Pasture 2004

Analysis Categories			Substrate Types		
Season	**Sex**	**H or R**	**Mineral Soils**	**Organic**	**Other**
Breeding	Female	H	21	24	13
Breeding	Female	R	29	28	1
Breeding	Male	H	24	3	5
Breeding	Male	R	25	4	3
Foraging	Female	H	73	5	2
Foraging	Female	R	73	6	1
Foraging	Male	H	14	3	9
Foraging	Male	R	18	4	4
PreHib	Female	H	17	6	2
PreHib	Female	R	17	7	1

C) Boreal Forest 2005

Analysis Categories			Substrate Types			
Season	**Sex**	**H or R**	**Mineral Soils**	**Organic**	**Peat**	**Other**
Breeding	Female	H	1	23	57	2
Breeding	Female	R	9	20	54	0
Breeding	Male	H	1	19	95	0
Breeding	Male	R	13	8	93	1
Foraging	Female	H	12	32	40	5
Foraging	Female	R	5	41	42	1
Foraging	Male	H	10	37	66	1
Foraging	Male	R	7	36	71	0
PreHib	Female	H	2	26	38	1
PreHib	Female	R	6	18	43	0
PreHib	Male	H	0	21	38	0
PreHib	Male	R	2	16	41	0

D) Pasture 2006

Analysis Categories			Substrate Types		
Season	**Sex**	**H or R**	**Mineral Soils**	**Organic**	**Other**
Breeding	Female	H	80	36	4
Breeding	Female	R	90	27	2
Breeding	Male	H	110	18	0
Breeding	Male	R	118	10	0
Foraging	Female	H	92	60	10
Foraging	Female	R	109	47	6
Foraging	Male	H	128	32	8
Foraging	Male	R	140	26	2
PreHib	Female	H	44	36	2
PreHib	Female	R	53	29	0
PreHib	Male	H	20	35	4
PreHib	Male	R	29	29	1

Supplemental Information 11. Frequency tables for the categorical variable Habitat Type for Western Toad (*Anaxyrus boreas*) micro-habitat use in north-central Alberta, 2004–2006. Study areas are Pasture and Boreal Forest. Seasons are Breeding (Bre), Foraging (For), and Pre-Hibernation (PreHib). Sexes are Female (F) and Male (M). H or R indicates used habitat (H) vs. available habitat (R). Abbreviations were used for habitat types Subhydric (Hyd), Hygric/Subhygric (Hyg), Mesic/Submesic (Mes), and Upland Shrub (Shr).

A) Pasture 2004

Analysis Categories			**Habitat Types**	
Season	**Sex**	**H or R**	**Crop/Hay**	**Other**
Bre	F	H	13	45
Bre	F	R	11	47
Bre	M	H	1	31
Bre	M	R	5	27
For	F	H	70	10
For	F	R	69	11
For	M	H	8	18
For	M	R	7	19
PreHib	F	H	16	9
PreHib	F	R	15	10

B) Boreal Forest 2005

Analysis Categories						Habitat Types		
Season	**Sex**	**H or R**	**Hyd**	**Hyg**	**Mes**	**Burnt/Cut**	**Linear Corridor**	**Other**
Bre	F	H	46	8	9	6	9	5
Bre	F	R	45	8	8	4	14	4
Bre	M	H	106	0	2	4	2	1
Bre	M	R	91	0	0	3	19	2
For	F	H	25	23	25	0	16	0
For	F	R	24	22	23	0	20	0
For	M	H	76	1	32	3	2	0
For	M	R	69	2	28	6	9	0
PreHib	F	H	40	14	5	3	5	0
PreHib	F	R	38	10	10	3	6	0
PreHib	M	H	53	0	4	2	0	0
PreHib	M	R	50	1	2	3	3	0

C) Pasture 2006

Analysis Categories			Habitat Types							
Season	**Sex**	**H or R**	**Hyd**	**Hyg**	**Mes**	**Shr**	**Crop/Hay**	**Pasture**	**Pond Edge**	**Other**
Bre	F	H	13	14	25	0	3	27	28	10
Bre	F	R	12	13	29	0	2	51	8	5
Bre	M	H	7	10	7	0	2	62	38	2
Bre	M	R	5	6	7	0	2	95	12	1
For	F	H	13	63	58	0	15	6	1	2
For	F	R	18	42	50	0	19	20	1	12
For	M	H	2	52	37	2	25	37	10	3
For	M	R	5	41	32	2	24	52	4	8
PreHib	F	H	2	29	43	5	0	0	0	3
PreHib	F	R	2	27	39	6	0	4	0	4
PreHib	M	H	4	33	14	7	0	0	0	1
PreHib	M	R	3	28	15	6	2	4	1	0

Supplemental Information 12. Descriptive statistics for the continuous variables for Western Toad (*Anaxyrus boreas*) micro-habitat use in north-central Alberta, 2004–2006. Study areas are Parkland, Pasture, and Boreal Forest. Seasons are Breeding, Foraging, and Pre-Hibernation (Pre-Hib). H or R indicates used habitat (H) vs. available habitat (R).

Air Temperature (°C)

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2004	Parkland	Breeding	Female	H	34	4	21	11.97	0.95
2004	Parkland	Breeding	Female	R	32	4	21	12.41	1.02
2004	Parkland	Breeding	Male	H	20	5	22	12.30	1.08
2004	Parkland	Breeding	Male	R	21	5	21	13.81	1.13
2004	Parkland	Foraging	Female	H	61	4	26	15.13	0.69
2004	Parkland	Foraging	Female	R	63	4	23	14.06	0.59
2004	Parkland	Foraging	Male	H	32	4	26	15.19	1.02
2004	Parkland	Foraging	Male	R	33	4	20	14.55	0.81
2004	Parkland	Prehib	Female	H	25	1	22	11.32	1.06
2004	Parkland	Prehib	Female	R	25	2	22	13.04	1.04
2004	Parkland	Prehib	Male	H	23	2	18	10.61	0.78
2004	Parkland	Prehib	Male	R	23	0	16	10.00	0.78
2004	Pasture	Breeding	Female	H	58	6	25	15.66	0.71
2004	Pasture	Breeding	Female	R	58	6	37	16.33	0.81
2004	Pasture	Breeding	Male	H	32	5	24	14.47	0.99
2004	Pasture	Breeding	Male	R	32	6	33	16.47	1.21

2004	Pasture	Foraging	Female	H	80	6	26	14.20	0.52
2004	Pasture	Foraging	Female	R	80	6	26	14.24	0.50
2004	Pasture	Foraging	Male	H	25	9	24	14.08	0.74
2004	Pasture	Foraging	Male	R	26	8	21	14.73	0.81
2004	Pasture	Prehib	Female	H	22	2	26	9.36	1.09
2004	Pasture	Prehib	Female	R	22	2	20	9.41	0.82
2005	Boreal	Breeding	Female	H	83	3	34	16.40	0.72
2005	Boreal	Breeding	Female	R	81	6	33	17.59	0.67
2005	Boreal	Breeding	Male	H	114	5	28	16.87	0.46
2005	Boreal	Breeding	Male	R	115	3	32	17.57	0.50
2005	Boreal	Foraging	Female	H	89	8	32	17.10	0.58
2005	Boreal	Foraging	Female	R	89	9	30	17.72	0.55
2005	Boreal	Foraging	Male	H	114	8	37	18.03	0.53
2005	Boreal	Foraging	Male	R	114	8	35	18.57	0.53
2005	Boreal	Prehib	Female	H	66	0	20	11.97	0.58
2005	Boreal	Prehib	Female	R	67	0	24	13.15	0.63
2005	Boreal	Prehib	Male	H	59	5	23	12.42	0.60
2005	Boreal	Prehib	Male	R	59	3	22	12.31	0.58
2006	Pasture	Breeding	Female	H	118	9	39	19.80	0.58
2006	Pasture	Breeding	Female	R	120	10	38	20.29	0.62
2006	Pasture	Breeding	Male	H	113	8	39	19.87	0.57
2006	Pasture	Breeding	Male	R	128	8	41	23.23	0.65
2006	Pasture	Foraging	Female	H	160	5	35	20.43	0.46

2006	Pasture	Foraging	Female	R	161	5	41	21.29	0.49
2006	Pasture	Foraging	Male	H	153	6	45	21.14	0.50
2006	Pasture	Foraging	Male	R	167	6	44	23.25	0.53
2006	Pasture	Prehib	Female	H	82	2	26	12.71	0.64
2006	Pasture	Prehib	Female	R	82	2	34	13.78	0.71
2006	Pasture	Prehib	Male	H	59	2	25	13.66	0.78
2006	Pasture	Prehib	Male	R	59	2	28	14.39	0.81

Soil Moisture (%)

Analysis Category					**Descriptive Statistics**				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	81	38	100	80.74	1.65
2005	Boreal	Breeding	Female	R	83	12	100	72.07	2.23
2005	Boreal	Breeding	Male	H	115	31	100	81.47	1.47
2005	Boreal	Breeding	Male	R	115	1	100	73.60	2.37
2005	Boreal	Foraging	Female	H	84	9	100	71.04	2.04
2005	Boreal	Foraging	Female	R	87	17	100	74.50	1.84
2005	Boreal	Foraging	Male	H	111	20	100	75.53	1.62
2005	Boreal	Foraging	Male	R	113	16	100	75.01	1.70
2005	Boreal	Prehib	Female	H	64	25	100	73.25	2.13
2005	Boreal	Prehib	Female	R	65	12	100	72.80	2.55
2005	Boreal	Prehib	Male	H	59	40	100	73.78	1.95
2005	Boreal	Prehib	Male	R	59	34	100	77.06	2.27

2006	Pasture	Breeding	Female	H	113	2	100	61.70	3.57
2006	Pasture	Breeding	Female	R	118	1	100	40.54	3.33
2006	Pasture	Breeding	Male	H	100	1	100	49.62	3.95
2006	Pasture	Breeding	Male	R	128	0	100	25.86	3.15
2006	Pasture	Foraging	Female	H	137	0	100	40.80	2.59
2006	Pasture	Foraging	Female	R	157	0	100	40.00	2.50
2006	Pasture	Foraging	Male	H	122	0	100	32.99	2.49
2006	Pasture	Foraging	Male	R	163	0	100	24.90	2.01
2006	Pasture	Prehib	Female	H	79	2	100	42.16	2.66
2006	Pasture	Prehib	Female	R	82	0	100	35.30	3.04
2006	Pasture	Prehib	Male	H	57	2	100	50.96	3.22
2006	Pasture	Prehib	Male	R	59	5	100	48.45	3.94

Percentage Cover in Woody Debris

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2004	Parkland	Breeding	Female	H	34	0	100	48.24	6.90
2004	Parkland	Breeding	Female	R	34	0	100	16.32	4.95
2004	Parkland	Breeding	Male	H	20	0	100	30.50	8.41
2004	Parkland	Breeding	Male	R	21	0	95	17.86	7.25
2004	Parkland	Foraging	Female	H	63	0	100	48.41	5.20
2004	Parkland	Foraging	Female	R	63	0	80	7.63	2.47
2004	Parkland	Foraging	Male	H	31	0	100	45.81	7.67

2004	Parkland	Foraging	Male	R	33	0	100	12.27	4.69
2004	Parkland	Prehib	Female	H	26	0	100	48.08	7.83
2004	Parkland	Prehib	Female	R	27	0	80	12.41	4.59
2004	Parkland	Prehib	Male	H	24	0	100	79.17	7.44
2004	Parkland	Prehib	Male	R	25	0	100	24.40	7.37
2004	Pasture	Breeding	Female	H	58	0	100	22.59	5.41
2004	Pasture	Breeding	Female	R	58	0	80	3.10	1.88
2004	Pasture	Breeding	Male	H	32	0	100	28.13	8.08
2004	Pasture	Breeding	Male	R	31	0	10	0.87	0.47
2004	Pasture	Foraging	Female	H	80	0	100	1.38	1.25
2004	Pasture	Foraging	Female	R	80	0	15	0.19	0.19
2004	Pasture	Foraging	Male	H	26	0	5	0.19	0.19
2004	Pasture	Foraging	Male	R	26	0	90	6.73	3.99
2004	Pasture	Prehib	Female	H	25	0	100	11.60	5.03
2004	Pasture	Prehib	Female	R	25	0	90	5.80	3.74
2005	Boreal	Breeding	Female	H	83	0	100	7.88	2.19
2005	Boreal	Breeding	Female	R	83	0	95	3.34	1.43
2005	Boreal	Breeding	Male	H	115	0	100	6.56	1.88
2005	Boreal	Breeding	Male	R	115	0	60	1.75	0.71
2005	Boreal	Foraging	Female	H	89	0	100	20.72	3.71
2005	Boreal	Foraging	Female	R	89	0	100	7.36	2.14
2005	Boreal	Foraging	Male	H	114	0	100	12.11	2.35
2005	Boreal	Foraging	Male	R	114	0	100	5.36	1.52

2005	Boreal	Prehib	Female	H	67	0	100	15.00	3.82
2005	Boreal	Prehib	Female	R	67	0	60	3.43	1.28
2005	Boreal	Prehib	Male	H	59	0	60	4.41	1.40
2005	Boreal	Prehib	Male	R	59	0	100	3.31	2.04
2006	Pasture	Breeding	Female	H	120	0	100	10.00	2.00
2006	Pasture	Breeding	Female	R	120	0	100	3.31	1.20
2006	Pasture	Breeding	Male	H	128	0	100	7.42	2.05
2006	Pasture	Breeding	Male	R	128	0	35	1.11	0.46
2006	Pasture	Foraging	Female	H	160	0	100	24.33	2.59
2006	Pasture	Foraging	Female	R	162	0	100	4.40	1.13
2006	Pasture	Foraging	Male	H	168	0	100	18.39	2.56
2006	Pasture	Foraging	Male	R	168	0	100	4.58	1.38
2006	Pasture	Prehib	Female	H	82	0	100	25.24	3.77
2006	Pasture	Prehib	Female	R	81	0	60	6.36	1.40
2006	Pasture	Prehib	Male	H	59	0	100	29.92	4.55
2006	Pasture	Prehib	Male	R	59	0	80	10.00	2.78

Distance to Water (m)

Analysis Category					**Descriptive Statistics**				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2004	Parkland	Breeding	Female	H	34	0	88	32.83	4.86
2004	Parkland	Breeding	Female	R	34	1	92	31.08	4.46
2004	Parkland	Breeding	Male	H	21	0	38	6.43	2.13

2004	Parkland	Breeding	Male	R	21	1	78	20.07	4.24
2004	Parkland	Foraging	Female	H	63	1	98	47.39	3.07
2004	Parkland	Foraging	Female	R	63	1	119	48.85	3.74
2004	Parkland	Foraging	Male	H	33	0	96	35.06	3.01
2004	Parkland	Foraging	Male	R	33	1	71	34.79	3.21
2004	Parkland	Prehib	Female	H	27	0	80	44.45	6.28
2004	Parkland	Prehib	Female	R	27	4	105	49.74	5.61
2004	Parkland	Prehib	Male	H	25	3	102	26.22	5.71
2004	Parkland	Prehib	Male	R	25	0	101	31.68	4.86
2004	Pasture	Breeding	Female	H	58	0	181	83.03	7.81
2004	Pasture	Breeding	Female	R	58	2	413	112.49	11.61
2004	Pasture	Breeding	Male	H	32	0	16	6.92	0.86
2004	Pasture	Breeding	Male	R	32	0	113	20.65	4.28
2004	Pasture	Foraging	Female	H	80	5	499	213.02	15.21
2004	Pasture	Foraging	Female	R	80	5	493	201.84	15.17
2004	Pasture	Foraging	Male	H	26	0	383	68.84	20.21
2004	Pasture	Foraging	Male	R	26	0	265	64.93	16.14
2004	Pasture	Prehib	Female	H	25	26	332	116.80	17.97
2004	Pasture	Prehib	Female	R	25	31	333	134.84	19.07
2005	Boreal	Breeding	Female	H	83	0	231	15.79	5.37
2005	Boreal	Breeding	Female	R	83	0	230	15.11	4.69
2005	Boreal	Breeding	Male	H	115	0	99	2.50	1.09
2005	Boreal	Breeding	Male	R	115	0	99	3.80	1.09

2005	Boreal	Foraging	Female	H	88	0	383	56.38	8.12
2005	Boreal	Foraging	Female	R	88	0	479	56.48	8.63
2005	Boreal	Foraging	Male	H	114	0	304	38.94	7.74
2005	Boreal	Foraging	Male	R	114	0	337	40.25	8.16
2005	Boreal	Prehib	Female	H	65	0	173	27.71	4.84
2005	Boreal	Prehib	Female	R	65	0	184	32.94	5.60
2005	Boreal	Prehib	Male	H	59	0	120	12.33	3.60
2005	Boreal	Prehib	Male	R	59	0	166	17.82	4.45
2006	Pasture	Breeding	Female	H	120	0	163	23.21	3.21
2006	Pasture	Breeding	Female	R	118	0	134	30.68	3.02
2006	Pasture	Breeding	Male	H	128	0	185	14.90	2.65
2006	Pasture	Breeding	Male	R	128	0	182	21.43	2.74
2006	Pasture	Foraging	Female	H	162	0	614	194.60	10.68
2006	Pasture	Foraging	Female	R	162	1	638	200.68	11.20
2006	Pasture	Foraging	Male	H	168	0	458	137.82	9.55
2006	Pasture	Foraging	Male	R	168	1	468	136.19	9.39
2006	Pasture	Prehib	Female	H	82	4	365	157.71	10.84
2006	Pasture	Prehib	Female	R	82	2	389	153.64	10.49
2006	Pasture	Prehib	Male	H	59	0	319	180.22	15.93
2006	Pasture	Prehib	Male	R	59	0	319	175.58	15.69

Vegetation Height (cm)

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2004	Parkland	Breeding	Female	H	34	0	150	46.00	6.42
2004	Parkland	Breeding	Female	R	34	0	120	41.13	6.15
2004	Parkland	Breeding	Male	H	20	0	60	27.70	3.40
2004	Parkland	Breeding	Male	R	21	0	80	27.57	5.35
2004	Parkland	Foraging	Female	H	63	0	1200	72.73	19.00
2004	Parkland	Foraging	Female	R	63	10	1666	92.76	25.95
2004	Parkland	Foraging	Male	H	31	0	225	67.68	11.08
2004	Parkland	Foraging	Male	R	33	10	210	92.64	10.54
2004	Parkland	Prehib	Female	H	26	0	300	74.12	12.60
2004	Parkland	Prehib	Female	R	27	7	170	57.11	10.27
2004	Parkland	Prehib	Male	H	23	0	400	64.17	19.01
2004	Parkland	Prehib	Male	R	25	20	240	92.72	14.33
2004	Pasture	Breeding	Female	H	54	0	82	28.77	3.56
2004	Pasture	Breeding	Female	R	57	0	90	27.21	2.88
2004	Pasture	Breeding	Male	H	32	0	80	21.61	3.52
2004	Pasture	Breeding	Male	R	32	3	215	25.94	6.48
2004	Pasture	Foraging	Female	H	80	0	300	64.40	4.38
2004	Pasture	Foraging	Female	R	80	7	130	57.79	3.49
2004	Pasture	Foraging	Male	H	26	0	169	56.46	9.81
2004	Pasture	Foraging	Male	R	26	1	157	52.37	8.03

2004	Pasture	Prehib	Female	H	23	0	110	50.48	6.29
2004	Pasture	Prehib	Female	R	25	1	100	32.96	5.64

Percentage Cover in Vegetation

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2004	Parkland	Breeding	Female	H	34	0	100	45.71	4.71
2004	Parkland	Breeding	Female	R	34	0	100	60.88	6.47
2004	Parkland	Breeding	Male	H	20	0	100	47.25	9.55
2004	Parkland	Breeding	Male	R	21	0	100	47.14	8.56
2004	Parkland	Foraging	Female	H	63	0	100	52.60	4.30
2004	Parkland	Foraging	Female	R	63	5	100	75.71	4.12
2004	Parkland	Foraging	Male	H	31	0	100	48.19	7.51
2004	Parkland	Foraging	Male	R	33	20	100	75.76	4.45
2004	Parkland	Prehib	Female	H	27	0	100	47.37	7.30
2004	Parkland	Prehib	Female	R	27	5	100	52.15	7.01
2004	Parkland	Prehib	Male	H	24	0	100	33.13	7.79
2004	Parkland	Prehib	Male	R	25	10	100	80.60	5.76
2004	Pasture	Breeding	Female	H	54	0	100	36.48	4.80
2004	Pasture	Breeding	Female	R	57	0	100	45.44	4.80
2004	Pasture	Breeding	Male	H	32	0	100	41.53	7.33
2004	Pasture	Breeding	Male	R	32	4	100	42.78	6.40
2004	Pasture	Foraging	Female	H	80	0	100	70.44	3.47

2004	Pasture	Foraging	Female	R	80	8	100	81.98	3.07
2004	Pasture	Foraging	Male	H	26	0	100	48.85	7.34
2004	Pasture	Foraging	Male	R	26	1	100	65.81	7.02
2004	Pasture	Prehib	Female	H	25	0	100	54.00	7.52
2004	Pasture	Prehib	Female	R	25	1	100	67.52	7.63

Herbaceous Height (cm)

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	81	0	80	13.79	1.61
2005	Boreal	Breeding	Female	R	83	0	60	11.02	1.39
2005	Boreal	Breeding	Male	H	115	0	60	16.37	1.27
2005	Boreal	Breeding	Male	R	115	0	60	15.94	1.30
2005	Boreal	Foraging	Female	H	88	0	85	19.02	2.01
2005	Boreal	Foraging	Female	R	88	0	105	26.67	2.97
2005	Boreal	Foraging	Male	H	114	0	80	15.02	1.42
2005	Boreal	Foraging	Male	R	113	0	80	17.42	1.72
2005	Boreal	Prehib	Female	H	66	0	58	15.41	1.83
2005	Boreal	Prehib	Female	R	67	0	100	19.22	3.12
2005	Boreal	Prehib	Male	H	59	0	64	13.64	1.92
2005	Boreal	Prehib	Male	R	59	0	140	18.61	3.07
2006	Pasture	Breeding	Female	H	119	3	90	21.84	1.48
2006	Pasture	Breeding	Female	R	116	0	74	18.12	1.23

2006	Pasture	Breeding	Male	H	127	0	95	23.43	1.37
2006	Pasture	Breeding	Male	R	128	0	59	16.96	0.95
2006	Pasture	Foraging	Female	H	160	0	156	20.86	1.67
2006	Pasture	Foraging	Female	R	162	0	100	17.38	1.31
2006	Pasture	Foraging	Male	H	168	0	170	23.38	1.64
2006	Pasture	Foraging	Male	R	168	0	80	18.71	1.04
2006	Pasture	Prehib	Female	H	82	0	100	17.44	2.05
2006	Pasture	Prehib	Female	R	82	0	62	11.68	1.19
2006	Pasture	Prehib	Male	H	57	0	100	20.54	2.84
2006	Pasture	Prehib	Male	R	59	0	67	16.17	2.06

Percentage Cover in Dead Herbaceous

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	83	0	100	11.64	2.33
2005	Boreal	Breeding	Female	R	83	0	90	6.98	1.59
2005	Boreal	Breeding	Male	H	115	0	100	20.70	2.36
2005	Boreal	Breeding	Male	R	115	0	90	20.10	2.60
2005	Boreal	Foraging	Female	H	89	0	70	6.01	1.57
2005	Boreal	Foraging	Female	R	89	0	80	6.51	1.60
2005	Boreal	Foraging	Male	H	114	0	60	4.16	0.91
2005	Boreal	Foraging	Male	R	113	0	90	7.33	1.59
2005	Boreal	Prehib	Female	H	67	0	50	4.33	0.96

2005	Boreal	Prehib	Female	R	67	0	40	4.21	1.02
2005	Boreal	Prehib	Male	H	59	0	85	7.08	2.11
2005	Boreal	Prehib	Male	R	59	0	95	7.42	2.60
2006	Pasture	Breeding	Female	H	120	0	99	14.38	1.92
2006	Pasture	Breeding	Female	R	120	0	100	13.42	1.72
2006	Pasture	Breeding	Male	H	128	0	95	12.80	1.45
2006	Pasture	Breeding	Male	R	128	0	40	9.70	0.82
2006	Pasture	Foraging	Female	H	161	0	70	10.67	1.07
2006	Pasture	Foraging	Female	R	162	0	100	9.39	1.17
2006	Pasture	Foraging	Male	H	168	0	90	12.73	1.17
2006	Pasture	Foraging	Male	R	168	0	60	11.58	0.91
2006	Pasture	Prehib	Female	H	82	0	60	12.27	1.65
2006	Pasture	Prehib	Female	R	82	0	90	15.27	2.10
2006	Pasture	Prehib	Male	H	59	0	70	13.71	2.14
2006	Pasture	Prehib	Male	R	59	0	90	21.32	3.09

Percentage Cover in Live Herbaceous

Analysis Category					**Descriptive Statistics**				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	83	0	90	13.35	2.20
2005	Boreal	Breeding	Female	R	83	0	100	15.49	2.64
2005	Boreal	Breeding	Male	H	115	0	70	11.62	1.16
2005	Boreal	Breeding	Male	R	115	0	85	12.87	1.30

2005	Boreal	Foraging	Female	H	89	0	85	21.21	2.41
2005	Boreal	Foraging	Female	R	88	0	100	34.02	3.41
2005	Boreal	Foraging	Male	H	114	0	95	21.46	2.02
2005	Boreal	Foraging	Male	R	113	0	95	25.48	2.13
2005	Boreal	Prehib	Female	H	67	0	90	13.10	2.49
2005	Boreal	Prehib	Female	R	67	0	100	24.94	3.80
2005	Boreal	Prehib	Male	H	59	0	70	12.08	2.46
2005	Boreal	Prehib	Male	R	59	0	100	23.59	3.51
2006	Pasture	Breeding	Female	H	120	0	100	34.14	2.46
2006	Pasture	Breeding	Female	R	120	0	100	36.88	2.59
2006	Pasture	Breeding	Male	H	128	0	100	33.80	2.28
2006	Pasture	Breeding	Male	R	128	0	95	35.83	2.29
2006	Pasture	Foraging	Female	H	161	0	100	24.94	2.10
2006	Pasture	Foraging	Female	R	162	0	100	39.18	2.47
2006	Pasture	Foraging	Male	H	168	0	100	29.10	1.93
2006	Pasture	Foraging	Male	R	168	0	100	40.31	2.15
2006	Pasture	Prehib	Female	H	82	0	70	15.02	2.06
2006	Pasture	Prehib	Female	R	82	0	95	17.88	2.22
2006	Pasture	Prehib	Male	H	59	0	95	17.90	3.21
2006	Pasture	Prehib	Male	R	59	0	95	26.46	3.50

Shrub Height (cm)

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	83	0	200	29.57	3.70
2005	Boreal	Breeding	Female	R	82	0	250	19.72	3.70
2005	Boreal	Breeding	Male	H	114	0	250	40.92	4.83
2005	Boreal	Breeding	Male	R	115	0	140	27.46	2.92
2005	Boreal	Foraging	Female	H	89	0	400	29.90	6.06
2005	Boreal	Foraging	Female	R	87	0	70	19.28	1.92
2005	Boreal	Foraging	Male	H	113	0	170	30.12	3.03
2005	Boreal	Foraging	Male	R	110	0	230	19.81	3.20
2005	Boreal	Prehib	Female	H	66	0	90	24.24	2.76
2005	Boreal	Prehib	Female	R	67	0	100	16.82	2.65
2005	Boreal	Prehib	Male	H	57	0	70	22.88	2.34
2005	Boreal	Prehib	Male	R	58	0	125	21.36	3.08
2006	Pasture	Breeding	Female	H	118	0	135	16.21	2.25
2006	Pasture	Breeding	Female	R	117	0	70	7.21	1.27
2006	Pasture	Breeding	Male	H	127	0	72	6.84	1.47
2006	Pasture	Breeding	Male	R	128	0	72	4.03	1.01
2006	Pasture	Foraging	Female	H	155	0	100	16.17	1.90
2006	Pasture	Foraging	Female	R	155	0	105	11.68	1.74
2006	Pasture	Foraging	Male	H	166	0	500	14.55	3.35
2006	Pasture	Foraging	Male	R	165	0	98	5.37	1.02

2006	Pasture	Prehib	Female	H	82	0	100	23.50	2.77
2006	Pasture	Prehib	Female	R	81	0	90	21.86	2.57
2006	Pasture	Prehib	Male	H	57	0	100	25.56	3.73
2006	Pasture	Prehib	Male	R	59	0	100	18.36	3.42

Percentage Cover in Dead Shrubs

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	83	0	50	3.53	0.86
2005	Boreal	Breeding	Female	R	83	0	75	3.46	1.15
2005	Boreal	Breeding	Male	H	115	0	90	10.15	1.97
2005	Boreal	Breeding	Male	R	115	0	100	6.91	1.63
2005	Boreal	Foraging	Female	H	88	0	90	7.33	1.88
2005	Boreal	Foraging	Female	R	89	0	100	7.22	2.14
2005	Boreal	Foraging	Male	H	114	0	100	9.02	1.95
2005	Boreal	Foraging	Male	R	113	0	90	4.36	1.03
2005	Boreal	Prehib	Female	H	67	0	40	5.64	1.18
2005	Boreal	Prehib	Female	R	67	0	60	3.07	1.13
2005	Boreal	Prehib	Male	H	59	0	45	6.22	1.42
2005	Boreal	Prehib	Male	R	59	0	50	2.83	1.15
2006	Pasture	Breeding	Female	H	120	0	45	1.22	0.48
2006	Pasture	Breeding	Female	R	120	0	25	0.67	0.28
2006	Pasture	Breeding	Male	H	128	0	45	1.35	0.56

2006	Pasture	Breeding	Male	R	128	0	20	0.63	0.27
2006	Pasture	Foraging	Female	H	161	0	95	4.82	1.09
2006	Pasture	Foraging	Female	R	162	0	50	1.57	0.43
2006	Pasture	Foraging	Male	H	168	0	60	2.83	0.64
2006	Pasture	Foraging	Male	R	168	0	25	0.93	0.26
2006	Pasture	Prehib	Female	H	82	0	70	10.21	1.71
2006	Pasture	Prehib	Female	R	82	0	40	4.51	0.86
2006	Pasture	Prehib	Male	H	59	0	60	7.66	1.62
2006	Pasture	Prehib	Male	R	59	0	70	5.08	1.52

Percentage Cover in Live Shrubs

Analysis Category					Descriptive Statistics				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	83	0	100	16.87	2.19
2005	Boreal	Breeding	Female	R	83	0	80	12.22	1.90
2005	Boreal	Breeding	Male	H	115	0	100	19.89	2.23
2005	Boreal	Breeding	Male	R	115	0	90	17.01	2.10
2005	Boreal	Foraging	Female	H	88	0	100	20.84	2.68
2005	Boreal	Foraging	Female	R	88	0	85	16.18	1.99
2005	Boreal	Foraging	Male	H	114	0	100	27.75	2.50
2005	Boreal	Foraging	Male	R	112	0	100	15.16	2.07
2005	Boreal	Prehib	Female	H	67	0	90	21.94	3.08
2005	Boreal	Prehib	Female	R	67	0	90	15.61	2.46

2005	Boreal	Prehib	Male	H	59	0	80	20.49	2.70
2005	Boreal	Prehib	Male	R	59	0	80	13.51	2.31
2006	Pasture	Breeding	Female	H	120	0	80	9.69	1.51
2006	Pasture	Breeding	Female	R	120	0	85	6.10	1.36
2006	Pasture	Breeding	Male	H	128	0	95	3.68	1.12
2006	Pasture	Breeding	Male	R	128	0	75	2.64	0.84
2006	Pasture	Foraging	Female	H	161	0	85	11.54	1.64
2006	Pasture	Foraging	Female	R	162	0	100	8.70	1.51
2006	Pasture	Foraging	Male	H	168	0	95	7.41	1.29
2006	Pasture	Foraging	Male	R	168	0	70	3.85	0.80
2006	Pasture	Prehib	Female	H	82	0	70	8.74	1.73
2006	Pasture	Prehib	Female	R	82	0	60	7.72	1.34
2006	Pasture	Prehib	Male	H	59	0	60	9.07	1.93
2006	Pasture	Prehib	Male	R	59	0	35	6.36	1.37

Canopy Cover (%)

Analysis Category					**Descriptive Statistics**				
Year	**Study area**	**Season**	**Sex**	**H or R**	**N**	**Min**	**Max**	**Mean**	**SE**
2005	Boreal	Breeding	Female	H	83	0	92	27.16	2.84
2005	Boreal	Breeding	Female	R	83	0	90	35.04	3.23
2005	Boreal	Breeding	Male	H	115	0	84	23.77	1.94
2005	Boreal	Breeding	Male	R	115	0	89	25.88	2.16
2005	Boreal	Foraging	Female	H	89	0	99	50.43	3.55

2005	Boreal	Foraging	Female	R	89	0	100	46.24	3.73
2005	Boreal	Foraging	Male	H	114	0	100	53.74	2.71
2005	Boreal	Foraging	Male	R	114	0	98	50.84	3.04
2005	Boreal	Prehib	Female	H	67	0	94	48.83	3.19
2005	Boreal	Prehib	Female	R	67	0	95	45.03	3.81
2005	Boreal	Prehib	Male	H	59	23	93	59.23	2.66
2005	Boreal	Prehib	Male	R	59	0	90	50.17	3.33
2006	Pasture	Breeding	Female	H	120	0	90	24.58	2.75
2006	Pasture	Breeding	Female	R	120	0	95	30.67	3.18
2006	Pasture	Breeding	Male	H	128	0	95	14.95	2.27
2006	Pasture	Breeding	Male	R	128	0	93	8.44	1.84
2006	Pasture	Foraging	Female	H	162	0	100	56.83	2.41
2006	Pasture	Foraging	Female	R	162	0	100	50.65	2.74
2006	Pasture	Foraging	Male	H	168	0	100	44.20	2.99
2006	Pasture	Foraging	Male	R	167	0	100	33.01	2.82
2006	Pasture	Prehib	Female	H	82	20	100	66.45	2.60
2006	Pasture	Prehib	Female	R	82	0	99	59.43	3.63
2006	Pasture	Prehib	Male	H	59	11	100	70.09	3.24
2006	Pasture	Prehib	Male	R	59	0	97	57.00	4.24