Supplementary Material 3.

Cain III, J.W., J.H. Kay, S.G. Liley, and J.V. Gedir. Mule deer (*Odocoileus hemionus*) resource selection: trade-offs between forage and predation risk

Seasonal and diel resource selection models for mule deer

Table 3.1. Candidate models for assessing adult female mule deer (*Odocoileus hemionus*) habitat selection in the Gallinas Mountains, New Mexico, 2015–2016. All models include a random effect for individual deer.

Model Structure[a,b]
VRM^2 + Water + Pred + Bio
VRM^2 + Water + Pred + Prot
VRM^2 + Water + Visibility + Bio
VRM^2 + Water + Visibility + Prot
VRM^2 + Water + Pred × Visibility + Bio
VRM^2 + Water + Pred × Visibility + Prot
VRM^2 + Water + Pred × Visibility + Pred × Bio
VRM^2 + Water + Pred × Visibility + Pred × Prot
VRM^2 + Water + North + Pred + Bio
VRM^2 + Water + North + Pred + Prot
VRM^2 + Water + North + Visibility + Bio
VRM^2 + Water + North + Visibility + Prot
VRM^2 + Water + North + Pred × Visibility + Bio
VRM^2 + Water + North + Pred × Visibility + Prot
VRM^2 + Water + North + Pred × Visibility + Pred × Bio
VRM^2 + Water + North + Pred × Visibility + Pred × Prot
VRM^2 + Water + North + VRM × Visibility + Pred + Visibility + Bio
VRM^2 + Water + North + VRM × Visibility + Pred + Visibility + Prot
VRM^2 + Water + North + VRM × Visibility + Bio
VRM^2 + Water + North + VRM × Visibility + Prot
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Bio
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Prot
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot
VRM^2 + Water + North + VRM × Visibility + Pred × Bio
VRM^2 + Water + North + VRM × Visibility + Pred × Prot
VRM^2 + Water + North + Pred × Bio
VRM^2 + Water + North + Pred × Prot
VRM^2 + Water + VRM × Visibility + Pred × Visibility + Bio

VRM^2 + Water + VRM × Visibility + Pred × Visibility + Prot
VRM^2 + Water + VRM × Visibility + Pred × Visibility + Pred × Bio
VRM^2 + Water + VRM × Visibility + Pred × Visibility + Pred × Prot
VRM^2 + Water + Pred × Visibility
VRM^2 + Water + VRM × Visibility + Pred × Visibility
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility

[a] Covariate definitions: North = northness index; VRM = vector ruggedness measure; Visibility = horizontal visibility; Bio = edible forage biomass (g/m^2); Prot = digestible forage protein (g/m^2); Pred = predation risk; Water = distance to nearest water (m).

[b] Models with quadratic terms also include the linear term (e.g., a^2 refers to $a + a^2$ as fixed effects). Models with interaction terms also include main effects (e.g., a × b refers to a + b + a × b as fixed effects).

Table 3.2. Five highest-ranking models predicting adult female mule deer (*Odocoileus hemionus*) landscape scale (2nd order) habitat selection by season and diel period from mixed effects logistic regression models in the Gallinas Mountains, New Mexico, 2015–2016. Model structures, number of parameters (*K*), Akaike's Information Criterion for small sample size (AIC_c), difference in AIC_c value between current model and top model (ΔAIC_c), AIC_c weight (w_i), and rho value from k-fold cross-validation (of top model) are given All models include a random effect for individual deer.

Model Structure[a,b]	***K***	**AIC_c**	**ΔAIC_c**	**w_i**	***K-fold***
Spring Day (n = 10242)[c]					
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	23158.1	0.0	0.851	0.99
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	23162.2	4.1	0.108	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	23164.2	6.1	0.041	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	23196.2	38.1	0.000	
VRM² + Water + Pred × Visibility + Pred × Prot	10	23202.2	44.1	0.000	
Spring Crepuscular (n = 7206)					
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22971.3	0.0	0.728	0.98
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	22973.3	2.0	0.271	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	22985.7	14.3	0.001	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	23004.6	33.3	0.000	
VRM² + Water + Pred × Visibility + Pred × Prot	10	23017.1	45.8	0.000	
Spring Night (n = 11556)					
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	23018.9	0.0	0.731	0.98
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	23020.9	2.0	0.269	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	23033.4	14.4	0.001	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	23043.0	24.0	0.000	
VRM² + Water + North + Pred × Visibility + Prot	10	23051.1	32.1	0.000	
Summer Day (n = 6894)					
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	11	45217.1	0.0	0.687	0.99
VRM² + Water + North + VRM × Visibility + Prot	10	45219.5	2.4	0.210	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	45220.9	3.8	0.102	

VRM² + Water + North + VRM × Visibility + Pred × Visibility + Bio	11	45243.2	26.1	0.000	
VRM² + Water + North + VRM × Visibility + Pred × Bio	12	45245.1	28.0	0.000	
Summer Crepuscular (*n* = 9070)					
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	21921.9	0.0	0.834	0.94
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	21925.1	3.2	0.166	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	21939.2	17.4	0.000	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	21941.2	19.3	0.000	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	21949.8	27.9	0.000	
Summer Night (*n* = 11890)					
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22020.3	0.0	0.729	0.93
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	22022.3	2.0	0.270	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	22036.6	16.4	0.000	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	22038.2	17.9	0.000	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Visibility	12	22046.1	25.9	0.000	
Winter Day (*n* = 11884)					
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Bio	12	40284.2	0.0	0.526	0.91
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	40285.7	1.5	0.251	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio	13	40285.9	1.7	0.222	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	40297.6	13.4	0.001	
VRM² + Water + North + VRM × Visibility + Pred × Bio	12	40301.3	17.1	0.000	
Winter Crepuscular (*n* = 12642)					
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	40161.7	0.0	0.982	0.99
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	40169.8	8.0	0.018	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio	13	40182.3	20.5	0.000	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	40182.4	20.7	0.000	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Bio	12	40183.0	21.2	0.000	
Winter Night (*n* = 26724)					

VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Bio	12	39952.0	0.0	0.632	0.92
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio	13	39953.1	1.1	0.367	
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	39964.8	12.8	0.001	
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility	12	39970.5	18.5	0.000	
VRM^2 + Water + North + VRM × Visibility + Pred × Bio	12	39972.7	20.7	0.000	

[a] Covariate definitions: North = northness index; VRM = vector ruggedness measure; Visibility = horizontal visibility; Bio = edible forage biomass (g/m^2); Prot = digestible forage protein (g/m^2); Pred = predation risk; Water = distance to nearest water (m).

[b] Models with quadratic terms also include the linear term (e.g., a^2 refers to $a + a^2$ as fixed effects). Models with interaction terms also include main effects (e.g., a × b refers to a + b + a × b as fixed effects).

[c] Number of GPS locations.

Table 3.3. Scaled parameter estimates and 95% confidence limits for landscape scale (2nd order) habitat selection of adult female mule deer (*Odocoileus hemionus*) by season and diel period in the Gallinas Mountains, New Mexico, 2015–2016.

		95% Confidence Limits	
Parameter	**Estimate**	**Lower**	**Upper**
Spring Day			
VRM	0.70	0.64	0.75
VRM^2	-0.21	-0.24	-0.17
Water	-0.27	-0.30	-0.23
North	-0.11	-0.15	-0.08
Visibility	-0.24	-0.32	-0.16
Pred	0.12	0.05	0.19
Prot	0.34	0.30	0.37
VRM × Visibility	0.08	0.01	0.16
Visibility × Pred	-0.18	-0.33	-0.04
Pred × Prot	-0.33	-0.42	-0.24
Spring Crepuscular			
VRM	0.70	0.65	0.75
VRM^2	-0.21	-0.24	-0.17
Water	-0.28	-0.32	-0.25
North	-0.10	-0.14	-0.07
Visibility	-0.23	-0.31	-0.15
Pred	0.15	0.09	0.22
Prot	0.33	0.29	0.36
VRM × Visibility	0.10	0.02	0.17
Pred × Prot	-0.30	-0.37	-0.23
Spring Night			
VRM	0.69	0.64	0.75
VRM^2	-0.22	-0.26	-0.18
Water	-0.27	-0.31	-0.24
North	-0.10	-0.14	-0.07
Visibility	-0.24	-0.32	-0.16
Pred	0.04	-0.03	0.11
Prot	0.33	0.30	0.37
VRM × Visibility	0.05	-0.02	0.12
Pred × Prot	-0.19	-0.26	-0.12
Summer Day			
VRM	0.68	0.64	0.72
VRM^2	-0.24	-0.27	-0.21

Water	-0.14	-0.16	-0.11
North	-0.20	-0.22	-0.18
Visibility	-0.25	-0.30	-0.20
Pred	-0.02	-0.05	0.01
Prot	0.07	0.04	0.09
VRM × Visibility	0.10	0.05	0.15
Summer Crepuscular			
VRM	0.75	0.69	0.80
VRM²	-0.31	-0.35	-0.26
Water	-0.13	-0.16	-0.09
North	-0.08	-0.11	-0.04
Visibility	-0.51	-0.60	-0.42
Pred	0.01	-0.02	0.02
Prot	0.69	0.60	0.79
VRM × Visibility	-0.05	-0.14	0.03
Visibility × Pred	0.04	0.01	0.08
Pred × Prot	-0.14	-0.20	-0.08
Summer Night			
VRM	0.75	0.69	0.81
VRM²	-0.27	-0.31	-0.23
Water	-0.11	-0.15	-0.08
North	-0.09	-0.13	-0.06
Visibility	-0.50	-0.59	-0.41
Pred	-0.01	-0.03	0.01
Prot	0.58	0.49	0.67
VRM × Visibility	0.003	-0.08	0.09
Pred × Prot	-0.12	-0.17	-0.08
Winter Day			
VRM	0.89	0.84	0.93
VRM²	-0.32	-0.35	-0.29
Water	-0.23	-0.25	-0.20
North	-0.27	-0.29	-0.24
Visibility	-0.53	-0.59	-0.47
Pred	-0.16	-0.19	-0.12
Bio	0.16	0.11	0.21
VRM × Visibility	-0.07	-0.13	-0.01
Visibility × Pred	0.18	0.13	0.23
Winter Crepuscular			

VRM	0.86	0.82	0.91
VRM^2	-0.28	-0.31	-0.25
Water	-0.23	-0.26	-0.20
North	-0.28	-0.30	-0.25
Visibility	-0.65	-0.71	-0.59
Pred	-0.56	-0.74	-0.39
Prot	0.35	0.17	0.54
VRM × Visibility	-0.06	-0.12	-0.001
Visibility × Pred	0.11	0.04	0.17
Pred × Prot	-0.53	-0.74	-0.31
Winter Night			
VRM	0.88	0.84	0.92
VRM^2	-0.31	-0.34	-0.28
Water	-0.23	-0.26	-0.20
North	-0.27	-0.30	-0.25
Visibility	-0.61	-0.68	-0.55
Pred	-0.14	-0.17	-0.11
Bio	0.17	0.12	0.22
VRM × Visibility	-0.09	-0.15	-0.03
Visibility × Pred	0.15	0.09	0.20

[a] Covariate definitions: North = northness index; VRM = vector ruggedness measure; Visibility = horizontal visibility; Bio = edible forage biomass (g/m^2); Prot = digestible forage protein (g/m^2); Pred = predation risk; Water = distance to nearest water (m).

Table 3.4. Five highest-ranking models predicting adult female mule deer (*Odocoileus hemionus*) within home range scale (3rd order) habitat selection by season and diel period from mixed effects logistic regression models in the Gallinas Mountains, New Mexico, 2015–2016. Model structures, number of parameters (*K*), Akaike's Information Criterion for small sample size (AIC_c), difference in AIC_c value between current model and top model (ΔAIC_c), AIC_c weight (w_i), and rho value from k-fold cross-validation (of top model) are given. All models include a random effect for individual deer.

Model Structure[a,b]	*K*	AIC_c	ΔAIC_c	w_i	*K-fold*
Spring Day					
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22689.0	0.0	0.612	0.91
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	22690.3	1.2	0.327	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	22693.6	4.6	0.061	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	22711.1	22.0	0.000	
VRM² + Water + VRM × Visibility + Pred × Visibility + Prot	11	22714.2	25.1	0.000	
Spring Crepuscular					
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22803.2	0.0	0.710	0.94
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	22805.2	2.0	0.266	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	22810.0	6.8	0.024	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	22833.5	30.3	0.000	
VRM² + Water + VRM × Visibility + Pred × Visibility + Prot	11	22837.8	34.6	0.000	
Spring Night					
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	22671.5	0.0	0.604	0.96
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22672.5	0.9	0.378	
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	22678.6	7.1	0.017	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	22738.9	67.4	0.000	
VRM² + Water + VRM × Visibility + Pred × Visibility + Prot	11	22744.6	73.1	0.000	
Summer Day					
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	22530.0	0.0	0.750	0.91
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22532.2	2.2	0.247	

VRM² + Water + Pred × Visibility + Pred*Prot	10	22541.7	11.7	0.002	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	22543.1	13.0	0.001	
VRM² + Water + VRM × Visibility + Pred × Visibility + Prot	11	22558.8	28.8	0.000	
Summer Crepuscular					
VRM² + Water + VRM × Visibility + Pred × Visibility + Pred × Prot	12	22515.9	0.0	0.724	0.84
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22518.2	2.2	0.237	
VRM² + Water + VRM × Visibility + Pred × Visibility + Prot	11	22522.4	6.5	0.028	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Prot	12	22524.2	8.3	0.012	
VRM² + Water + North + VRM × Visibility + Pred + Visibility + Prot	11	22541.2	25.3	0.000	
Summer Night					
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	22532.3	0.0	0.730	0.87
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	22534.3	2.0	0.270	
VRM² + Water + Pred × Visibility + Pred × Prot	10	22555.4	23.1	0.000	
VRM² + Water + North + Pred × Visibility + Pred × Prot	11	22556.1	23.8	0.000	
VRM² + Water + VRM × Visibility + Pred × Visibility + Prot	11	22565.6	33.3	0.000	
Winter Day					
VRM² + Water + North + VRM × Visibility + Bio	10	42423.4	0.0	0.625	0.99
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio	13	42425.9	2.5	0.176	
VRM² + Water + North + VRM × Visibility + Pred × Bio	12	42426.4	3.0	0.139	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Prot	13	42428.1	4.7	0.060	
VRM² + Water + North + VRM × Visibility + Pred × Prot	12	42442.5	19.1	0.000	
Winter Crepuscular					
VRM² + Water + North + VRM × Visibility + Bio	10	42576.8	0.0	0.319	0.78
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Bio	12	42577.1	0.3	0.275	
VRM² + Water + North + VRM × Visibility + Pred * Bio	12	42578.3	1.5	0.152	
VRM² + Water + North + VRM × Visibility + Pred + Visibility + Bio	11	42578.4	1.6	0.147	
VRM² + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio	13	42579.0	2.2	0.107	

Winter Night					
VRM^2 + Water + North + VRM × Visibility + Pred × Bio	12	42567.2	0.0	0.690	0.98
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Pred × Bio	13	42568.9	1.7	0.295	
VRM^2 + Water + North + VRM × Visibility + Pred × Visibility + Bio	12	42575.6	8.4	0.011	
VRM^2 + Water + North + VRM × Visibility + Pred + Visibility + Bio	11	42578.2	11.0	0.003	
VRM^2 + Water + North + VRM × Visibility + Bio	10	42581.7	14.5	0.001	

[a] Covariate definitions: North = Northness index; VRM = vector ruggedness measure; Visibility = horizontal visibility; Bio = edible forage biomass (g/m^2); Prot = digestible forage Protein (g/m^2); Pred = Predation risk; Water = distance to nearest Water (m).

[b] Models with quadratic terms also include the linear term (e.g., a^2 refers to a + a^2 as fixed effects). Models with interaction terms also include main effects (e.g., a × b refers to a + b + a × b as fixed effects).

Table 3.5. Scaled parameter estimates and 95% confidence limits for within home range (3rd order) habitat selection of adult female mule deer (*Odocoileus hemionus*) by season and diel period in the Gallinas Mountains, New Mexico, 2015–2016.

		95% Confidence Limits	
Parameter	**Estimate**	**Lower**	**Upper**
	Spring Day		
VRM	0.71	0.65	0.77
VRM²	-0.28	-0.32	-0.24
Water	-0.12	-0.16	-0.08
North	-0.04	-0.08	-0.01
Visibility	0.17	0.10	0.24
Pred	0.17	0.09	0.25
Prot	0.29	0.25	0.32
VRM × Visibility	0.36	0.30	0.43
Pred × Prot	-0.17	-0.23	-0.10
	Spring Crepuscular		
VRM	0.68	0.62	0.74
VRM²	-0.25	-0.29	-0.22
Water	-0.13	-0.17	-0.09
North	-0.05	-0.08	-0.01
Visibility	0.17	0.10	0.24
Pred	0.30	0.22	0.39
Prot	0.30	0.26	0.33
VRM × Visibility	0.35	0.28	0.42
Pred × Prot	-0.21	-0.28	-0.14
	Spring Night		
VRM	0.71	0.65	0.77
VRM²	-0.25	-0.29	-0.22
Water	-0.12	-0.16	-0.08
North	-0.05	-0.09	-0.02
Visibility	0.20	0.13	0.27
Pred	0.27	0.19	0.35
Prot	0.30	0.27	0.34
VRM × Visibility	0.41	0.34	0.48
Visibility × Pred	0.08	-0.01	0.17
Pred × Prot	-0.27	-0.34	-0.20
	Summer Day		
VRM	0.12	0.06	0.18
VRM²	-0.03	-0.07	0.01

Water	0.08	0.04	0.12
Visibility	-0.20	-0.29	-0.11
Pred	-0.02	-0.04	0.00
Prot	-0.33	-0.42	-0.24
VRM × Visibility	-0.16	-0.25	-0.07
Visibility × Pred	-0.04	-0.09	0.01
Pred × Prot	-0.17	-0.24	-0.11
Summer Crepuscular			
VRM	0.09	0.03	0.15
VRM²	-0.03	-0.07	0.01
Water	0.09	0.05	0.13
Visibility	-0.24	-0.33	-0.15
Pred	-0.01	-0.04	0.01
Prot	-0.36	-0.45	-0.26
VRM × Visibility	-0.22	-0.31	-0.13
Visibility × Pred	0.03	-0.01	0.07
Pred × Prot	-0.09	-0.15	-0.03
Summer Night			
VRM	0.12	0.06	0.18
VRM²	-0.06	-0.10	-0.02
Water	0.08	0.04	0.12
North	0.02	-0.01	0.06
Visibility	-0.23	-0.31	-0.14
Pred	-0.02	-0.05	0.00
Prot	-0.32	-0.41	-0.22
VRM × Visibility	-0.20	-0.29	-0.11
Pred × Prot	-0.20	-0.25	-0.14
Winter Day			
VRM	0.37	0.33	0.42
VRM²	-0.13	-0.16	-0.11
Water	-0.07	-0.10	-0.04
North	-0.19	-0.22	-0.16
Visibility	-0.38	-0.44	-0.32
Bio	0.11	0.07	0.16
VRM × Visibility	-0.16	-0.22	-0.10
Winter Crepuscular			
VRM	0.38	0.33	0.42
VRM²	-0.14	-0.17	-0.11
Water	-0.06	-0.09	-0.03

North	-0.18	-0.21	-0.16
Visibility	-0.34	-0.4	-0.28
Bio	0.10	0.06	0.14
VRM × Visibility	-0.15	-0.21	-0.10
Winter Night			
VRM	0.35	0.31	0.40
VRM^2	-0.12	-0.14	-0.09
Water	-0.05	-0.08	-0.02
North	-0.18	-0.2	-0.15
Visibility	-0.39	-0.45	-0.33
Pred	0.10	0.06	0.15
Bio	0.06	0.02	0.11
VRM × Visibility	-0.13	-0.19	-0.07
Pred × Bio	0.09	0.04	0.14

[a] Covariate definitions: North = Northness index; VRM = vector ruggedness measure; Visibility = horizontal visibility; Bio = edible forage biomass (g/m^2); Prot = digestible forage Protein (g/m^2); Pred = Predation risk; Water = distance to nearest Water (m).

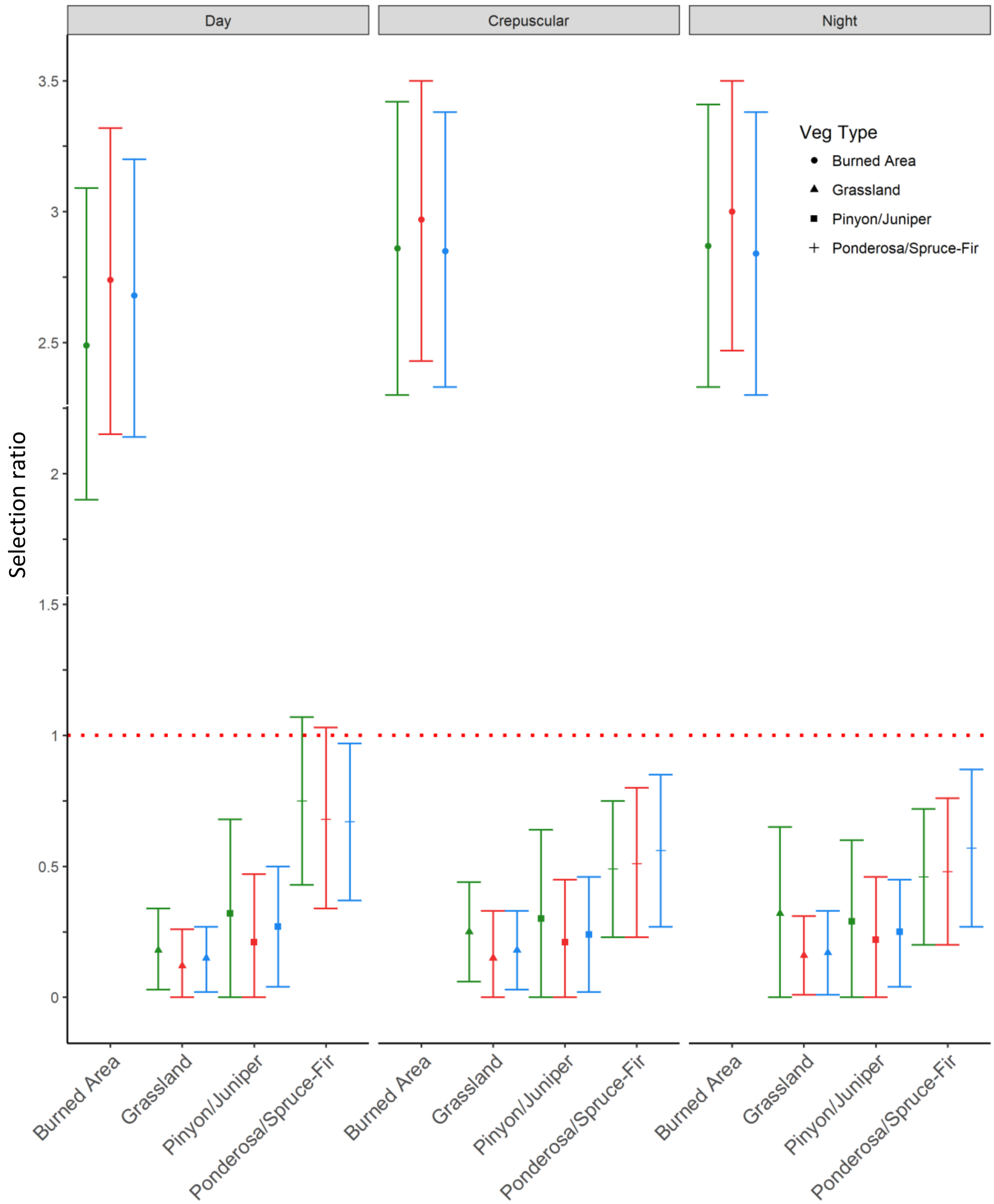

Figure 3.1. Manly selection index and 95% confidence limits for female mule deer (*Odocoileus hemionus*) selection of vegetation types by season (spring [green], summer [red], and winter [blue]) and diel period in the Gallinas Mountains, New Mexico, 2015-2016.

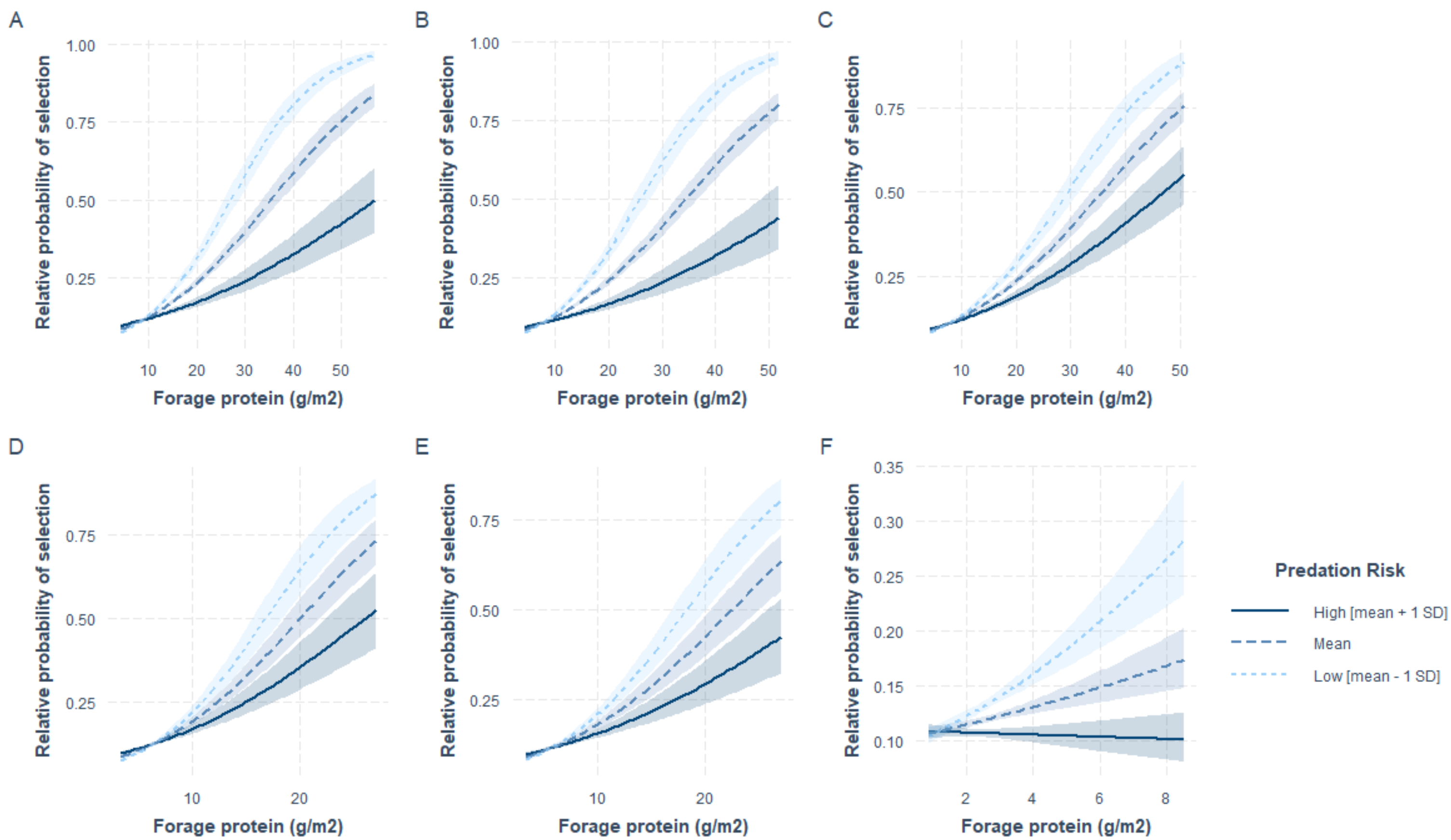

Figure 3.2. Predicted relative probability of selection by mule deer at the landscape scale in relation to forage protein content (g/m2) as a function of mountain lion predation risk during A) spring – crepuscular, B) spring -day, C) spring – night, D) summer – crepuscular, E) summer – night, and F) winter crepuscular diel periods in the Gallinas Mountains, New Mexico, 2015– 2016. Confidence bands are 90% confidence intervals. The relationship between predicted relative probability of selection and forage protein content are plotted for three levels of mountain lion predation risk (mean predation risk [mean], low predation risk [mean - 1 standard deviation SD] and high predation risk [mean +1 SD]). Note that the axes for the relative probability of selection depicted on each panel may be on different scales.

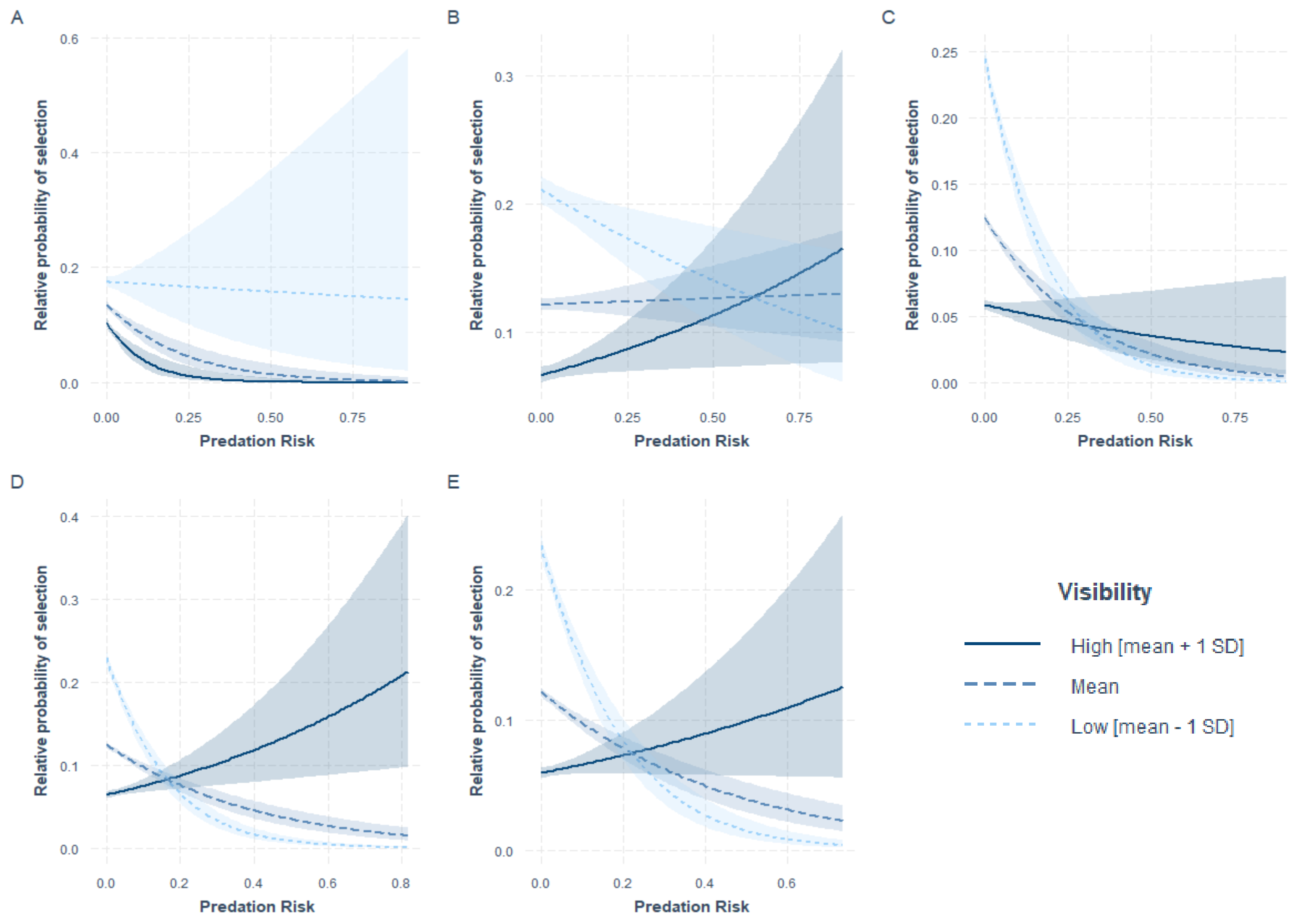

Figure 3.3. Predicted relative probability of selection by mule deer in relation to mountain lion predation risk as a function of horizontal visibility at the landscape scale during A) spring – day, B) summer – crepuscular, C) winter – crepuscular, D) winter – day, and E) winter – night, diel periods in the Gallinas Mountains, New Mexico, 2015– 2016. Confidence bands are 90% confidence intervals. The relationship between predicted relative probability of selection and mountain lion predation risk is plotted for three levels of horizontal visibility (mean visibility [mean], low visibility [mean - 1 standard deviation SD] and high visibility [mean +1 SD]). Note that the axes for the relative probability of selection depicted on each panel may be on different scales.

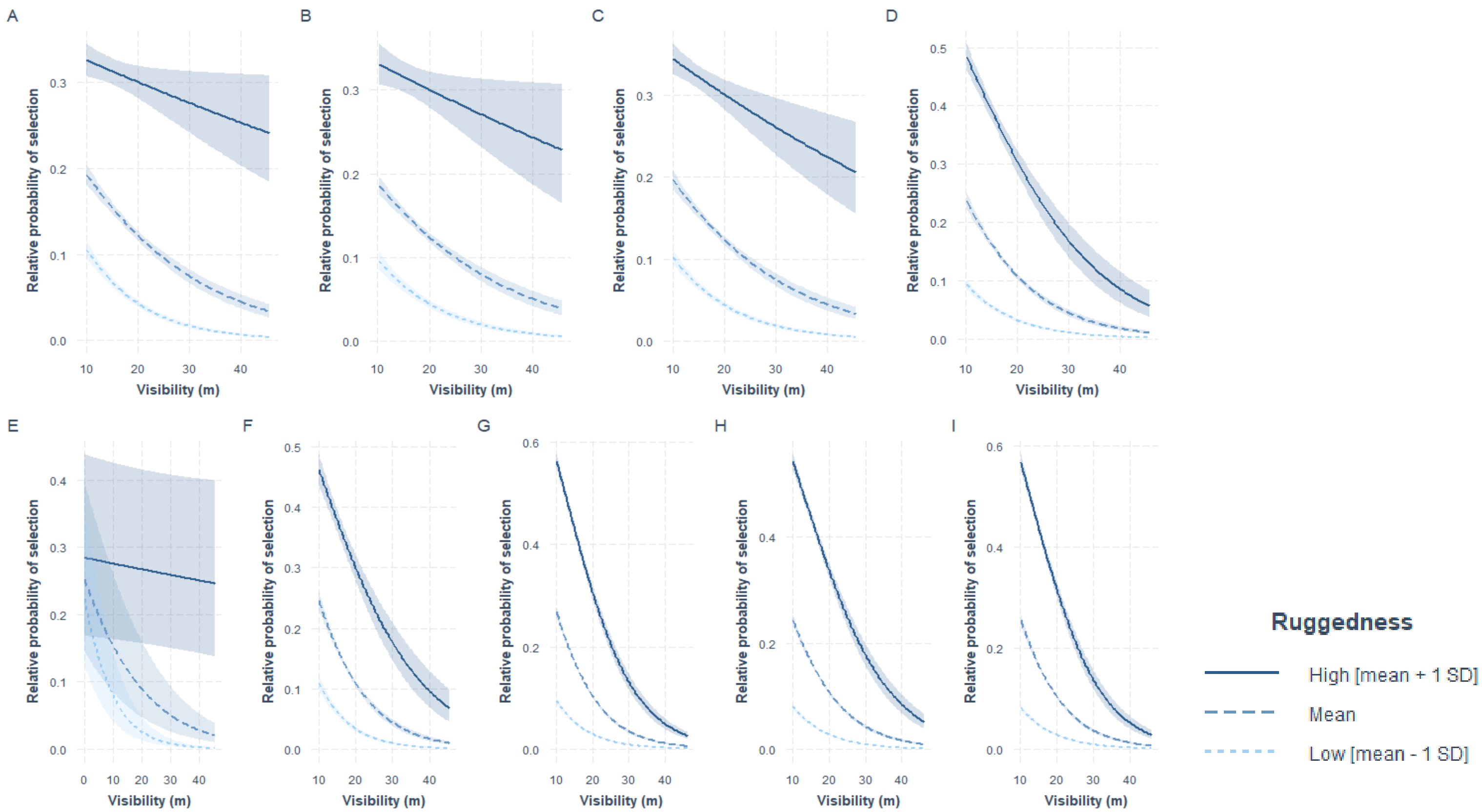

Figure 3.4. Predicted relative probability of selection by mule deer in relation to horizontal visibility as a function of terrain ruggedness at the landscape scale during A) spring - crepuscular, B) spring – day, C) spring - night, D) summer -crepuscular, E) summer – day, F) summer – night, G) winter – crepuscular, H) winter – day, and I) winter – night diel periods in the Gallinas Mountains, New Mexico, 2015– 2016. Confidence bands are 90% confidence intervals. The relationship between predicted relative probability of selection and horizontal visibility is plotted for three levels of terrain ruggedness (mean ruggedness [mean], low ruggedness [mean - 1 standard deviation SD] and high ruggedness [mean +1 SD]). Note that the axes for the relative probability of selection depicted on each panel may be on different scales.

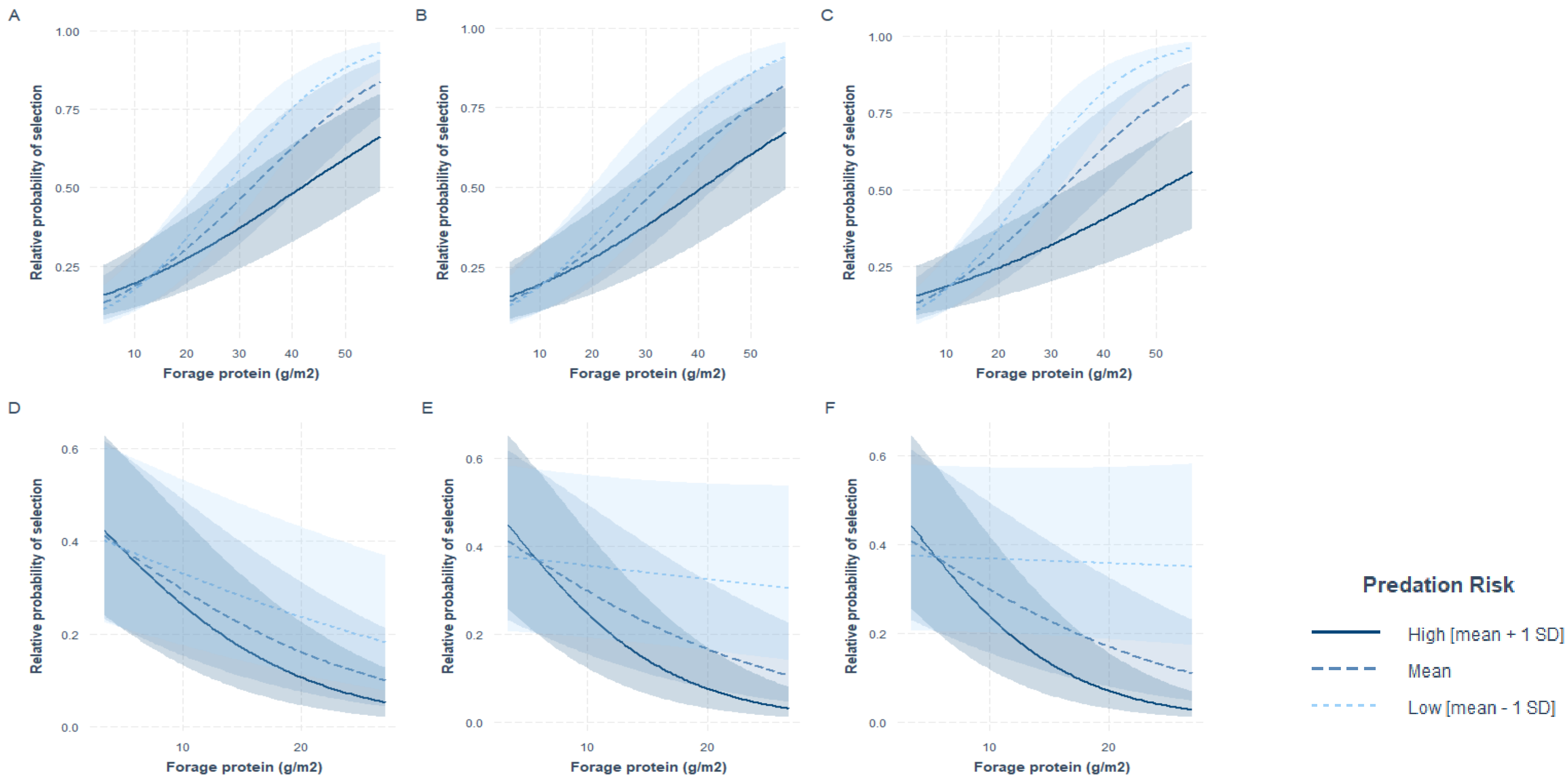

Figure 3.5. Predicted relative probability of selection by mule deer in relation to forage protein content (g/m^2) as a function of mountain lion predation risk at the within home range scale during A) spring - crepuscular, B) spring – day, C) spring - night, D) summer -crepuscular, E) summer – day, F) summer – night diel periods in the Gallinas Mountains, New Mexico, 2015– 2016. Confidence bands are 90% confidence intervals. The relationship between predicted relative probability of selection and horizontal visibility is plotted for three levels of terrain ruggedness (mean ruggedness [mean], low ruggedness [mean - 1 standard deviation SD] and high ruggedness [mean +1 SD]). Note that the axes for the relative probability of selection depicted on each panel may be on different scales.

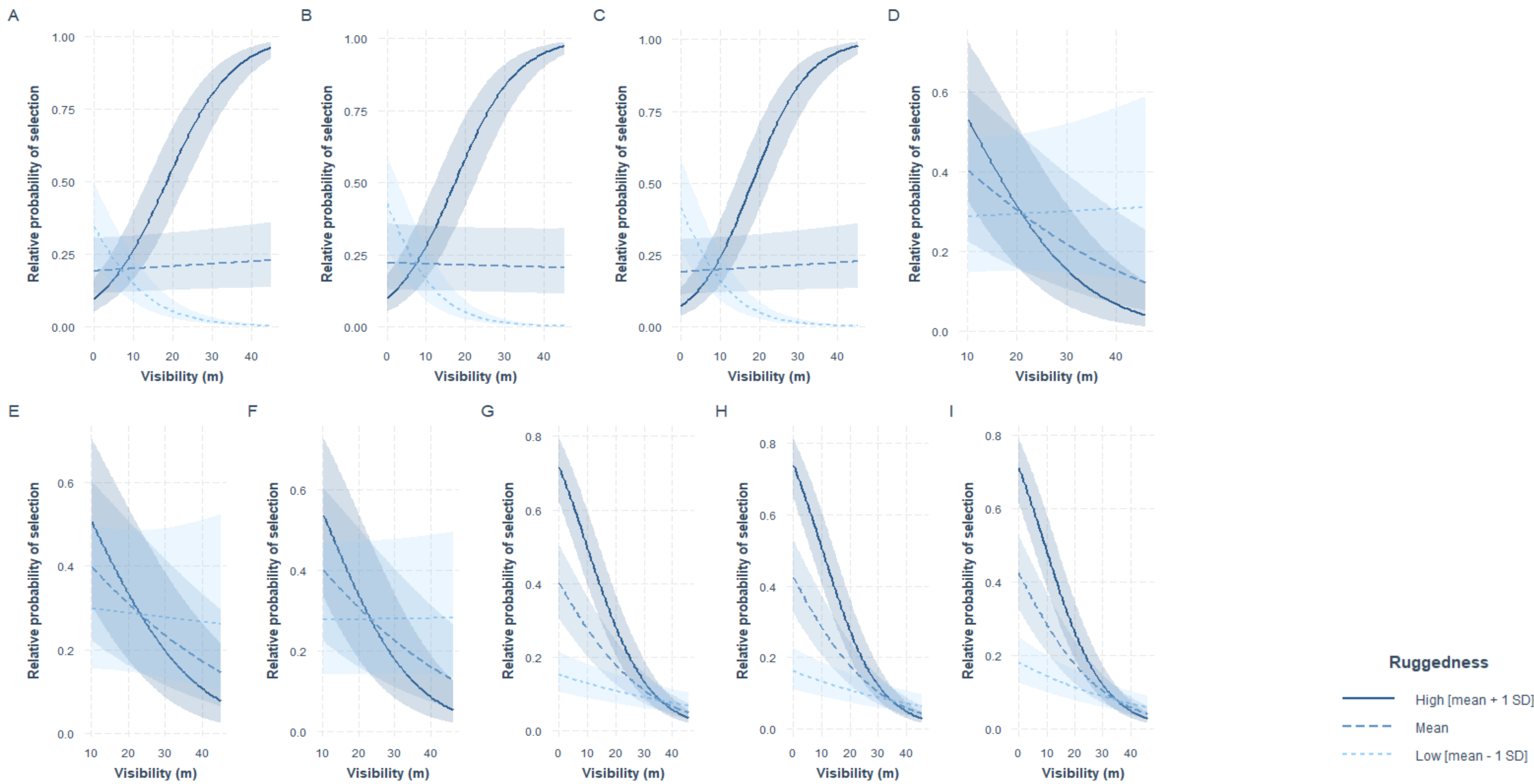

Figure 3.6. Predicted relative probability of selection by mule deer in relation to horizontal visibility as a function of terrain ruggedness at the within home range scale during A) spring - crepuscular, B) spring – day, C) spring - night, D) summer -crepuscular, E) summer – day, F) summer – night, G) winter – crepuscular, H) winter – day, and I) winter – night diel periods in the Gallinas Mountains, New Mexico, 2015– 2016. Confidence bands are 90% confidence intervals. The relationship between predicted relative probability of selection and horizontal visibility is plotted for three levels of terrain ruggedness (mean ruggedness [mean], low

ruggedness [mean - 1 standard deviation SD] and high ruggedness [mean +1 SD]). Note that the axes for the relative probability of selection depicted on each panel may be on different scales.