

Wildlife Biology

WLB-00540

Coon, C. A. C., Mahoney, P. J., Edelblutte, E., McDonald, Z. and Stoner, D. C. 2020. Predictors of puma occupancy indicate prey vulnerability is more important than prey availability in a highly fragmented landscape. – Wildlife Biology 2020: wlb.00540

Appendix 1

Data A1. Minimum and maximum number of active cameras by grid cell and season.

Cell	Dry 2013		Green 2014		Dry 2014		Green 2015		Dry 2015		Green 2016		Dry 2016		Green 2017	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
490	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	2
673	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1
735	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
766	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
812	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
862	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
1136	0	0	0	0	0	0	0	0	0	0	0	2	1	2	1	1
1171	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
1184	0	0	0	0	0	0	0	1	1	2	0	2	0	0	0	0
1198	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
1219	2	3	2	3	1	3	1	3	1	5	3	5	0	3	0	1
1265	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
1327	0	0	0	0	0	2	0	2	0	2	2	2	1	2	1	1
1331	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
1383	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0
1444	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1572	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	2
1836	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
1870	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2086	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2266	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0

Cell	Dry 2013		Green 2014		Dry 2014		Green 2015		Dry 2015		Green 2016		Dry 2016		Green 2017	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
2290	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2843	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0
2988	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
3070	1	1	0	1	0	0	0	0	0	0	0	0	2	1	1	
3221	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	
3350	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3532	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
3572	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	
3660	0	0	0	0	0	0	0	0	0	0	3	1	2	1	1	
3889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4044	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
4168	0	0	0	0	0	0	0	0	0	0	2	2	4	3	3	
4399	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	
4458	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	
4696	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4737	1	2	1	2	0	1	0	0	0	0	0	0	0	0	0	
4814	0	0	0	0	0	0	0	0	0	0	3	1	3	1	4	
4859	0	0	0	0	0	1	0	1	0	1	1	1	0	1	0	0
4953	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	
5006	0	1	1	1	1	2	0	2	0	2	0	0	0	0	0	
5505	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0
5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
5667	0	2	2	3	0	2	0	2	0	2	0	1	0	0	0	0

Cell	Dry 2013		Green 2014		Dry 2014		Green 2015		Dry 2015		Green 2016		Dry 2016		Green 2017	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
5681	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
5754	0	0	0	0	0	1	1	3	3	3	1	3	1	1	1	1
5876	1	3	1	1	0	1	0	0	0	0	0	0	0	0	0	0
5892	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5904	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0
5957	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5968	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
6158	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0
6462	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
6556	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6584	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
6589	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6651	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
6815	0	0	0	0	0	0	0	0	0	0	0	2	1	2	1	1
6905	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0
7235	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7252	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
7288	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7347	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7490	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	1
7525	0	0	0	0	0	2	0	2	1	1	0	1	0	0	0	0
7602	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
7764	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7802	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0

Cell	Dry 2013		Green 2014		Dry 2014		Green 2015		Dry 2015		Green 2016		Dry 2016		Green 2017	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
7933	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
7947	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	
8012	0	0	0	0	0	0	0	0	0	0	1	0	1	1	2	
8015	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
8038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8109	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	
8251	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
8255	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	
8326	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	
8509	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	
8558	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
8622	1	2	2	2	2	2	1	3	1	1	0	1	0	0	0	
8691	0	1	0	0	0	0	0	1	1	2	2	3	1	3	1	1
8742	0	0	0	0	0	2	0	1	0	1	1	1	0	1	0	0
8771	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0
8923	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9095	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
9165	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
9344	0	0	0	0	0	0	0	1	1	1	1	2	2	3	2	2
9362	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9716	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
9733	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
9817	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	1
9839	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0

Cell	Dry 2013		Green 2014		Dry 2014		Green 2015		Dry 2015		Green 2016		Dry 2016		Green 2017	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
9901	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0
10081	1	1	0	1	0	1	0	3	1	1	0	1	0	0	0	0
10088	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
10124	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	
10320	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	
10821	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	
10859	0	0	0	0	0	0	0	0	0	0	1	0	2	1	1	
10885	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
10886	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	
11012	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
11194	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
11304	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	
11308	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
11586	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	
11639	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
11696	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	
11700	0	0	0	0	0	0	0	0	0	4	3	4	0	3	0	2
11705	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
11761	0	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0
11835	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	
11908	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
11924	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
12090	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
12130	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	

Cell	Dry 2013		Green 2014		Dry 2014		Green 2015		Dry 2015		Green 2016		Dry 2016		Green 2017	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
18425	0	3	0	0	0	0	0	1	1	2	1	2	1	1	1	1
18547	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1	1
18707	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
18730	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
18792	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
18805	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1
18867	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
18961	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
18980	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0
19020	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
19034	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0
19038	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19069	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
19122	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1

Data A2. Correlations between initially tested variables. All variables were z-score transformed prior to creating the matrix.

	elevation	slope	distH20	distRoad	distDevelop	forest	roadDens	NDVI	shrub	TPI	TRI	VRM	zDeerAbund
elevation	1.00000000	0.40098244	0.40463625	0.07775339	0.54736237	0.19039792	0.0166182295	0.0210936365	-0.009966794	0.31493176	0.922801980	0.25946512	-0.07076366
slope	0.400982443	1.00000000	0.28527988	0.05848445	0.26509890	0.51773975	-0.1043637312	0.4797779954	-0.043767346	0.23803706	0.706063847	0.90295757	-0.07198540
distH20	0.404636251	0.28527988	1.00000000	0.09416799	0.15888881	0.21225326	0.0822284523	0.0788627962	-0.041908055	0.18466644	0.437165001	0.23843916	-0.10769481
distRoad	0.077753391	0.05848445	0.09416799	1.00000000	0.35649870	0.06026162	-0.1296987154	-0.0463651779	0.038977216	0.15730013	0.080850566	0.06762052	-0.06600599
distDevelop	0.547362367	0.26509890	0.15888881	0.35649870	1.00000000	0.05685048	-0.4156092569	0.0903047897	-0.034223328	0.18165858	0.503831875	0.18601979	-0.17009383
forest	0.190397922	0.51773975	0.21225326	0.06026162	0.05685048	1.00000000	0.2266050458	0.8007762975	0.043189189	0.24113679	0.365779870	0.46918386	-0.04998851
roadDens	0.016618229	-0.10436373	0.08222845	-0.12969872	-0.41560926	0.22660505	1.0000000000	-0.0002183177	0.118443132	-0.23008102	0.009520263	-0.12208554	0.23257362
NDVI	0.021093636	0.47977800	0.07886280	-0.04636518	0.09030479	0.80077630	-0.0002183177	1.0000000000	0.058485987	0.13369895	0.212834241	0.39274430	-0.02460320
shrub	-0.009966794	-0.04376735	-0.04190805	0.03897722	-0.03422333	0.04318919	0.1184431318	0.0584859869	1.000000000	0.05565256	-0.026243103	-0.07253969	0.02125477
TPI	0.314931762	0.23803706	0.18466644	0.15730013	0.18165858	0.24113679	-0.2300810196	0.1336989487	0.055652565	1.00000000	0.334773060	0.15758575	-0.17513526
TRI	0.922801980	0.70606385	0.43716500	0.08085057	0.50383188	0.36577987	0.0095202631	0.2128342407	-0.026243103	0.33477306	1.000000000	0.56295704	-0.05935041
VRM	0.259465124	0.90295757	0.23843916	0.06762052	0.18601979	0.46918386	-0.1220855381	0.3927443021	-0.072539690	0.15758575	0.562957037	1.00000000	-0.05712867
zDeerAbund	-0.070763658	-0.07198540	-0.10769481	-0.06600599	-0.17009383	-0.04998851	0.2325736207	-0.0246032019	0.021254774	-0.17513526	-0.059350411	-0.05712867	1.00000000

Data A3. Receiver operating curves and area under the curves for each of the best models for each species during each season. Puma models performed well while the deer models performed poorly.

