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Wildlife Research

Supplementary Material

Adaptive protocols identify sources of post-capture mortality in radio-marked wild turkeys

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Adaptive protocols for wild turkey capture

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SUPPLEMENTAL MATERIALS

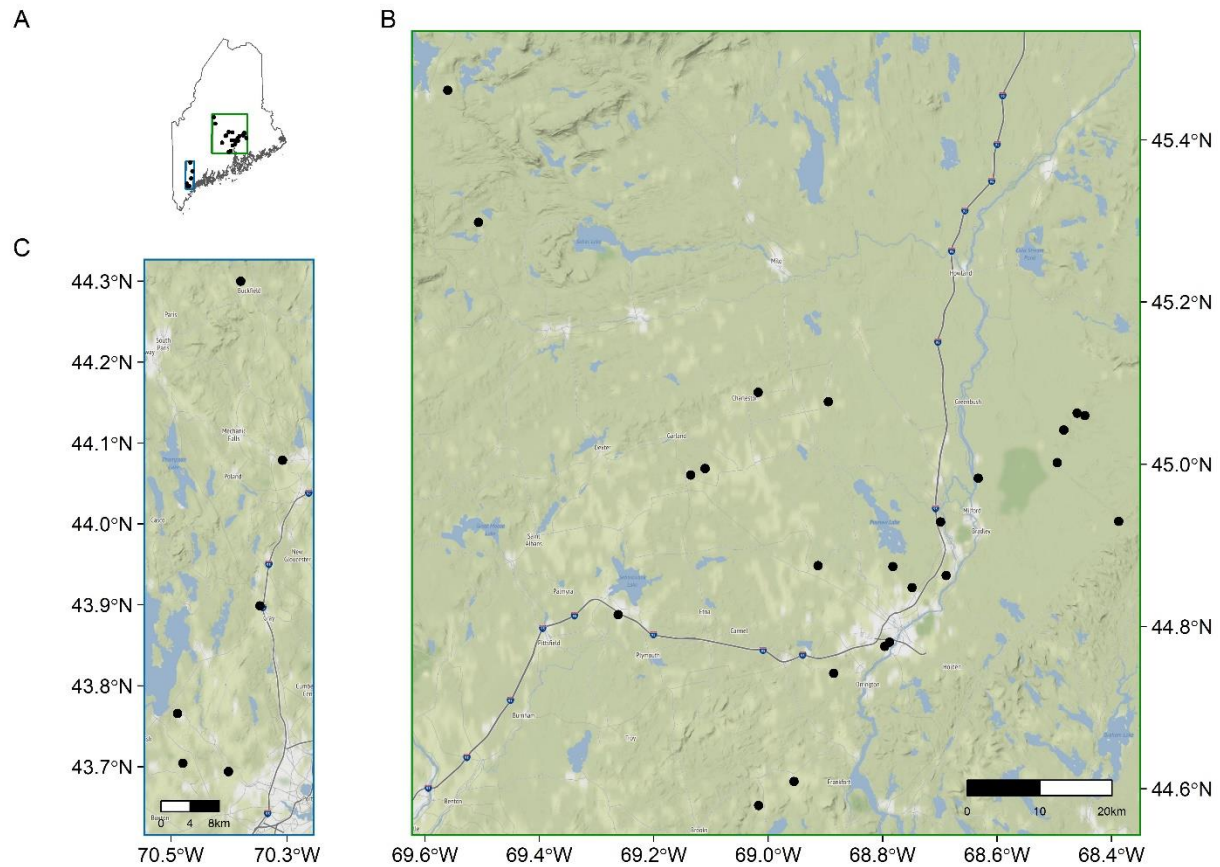


Figure S1. Study area map showing the general location of study areas within Maine, USA (A) and the distribution of capture sites (black points) within the northern (B) and southern (C) study areas.

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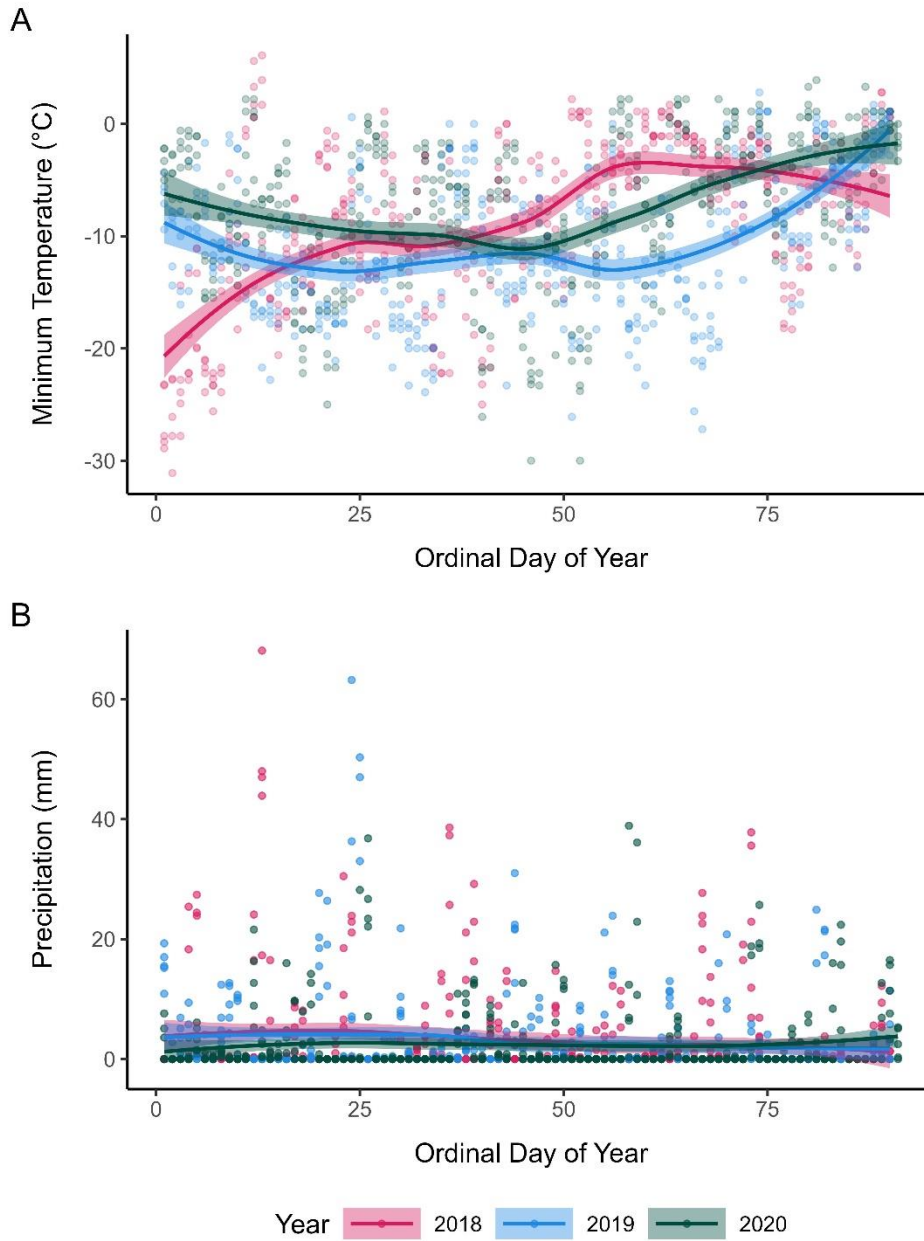


Figure S2. Measured minimum temperature (A) and daily precipitation (B) for all weather stations used in this study. Data is shown for the years 2018 (pink), 2019 (blue), and 2020 (dark green) along with spline regression lines to show general trends in the data. Data was accessed via the “rnoaa” package (Chamberlain 2023).

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Table S1. Sample sizes for wild turkeys captured during the course of winter 2018-2020 in Maine. Sample sizes are presented for all combinations of transmitter style, sex, and age of turkeys at capture.

Transmitter Style	Sex	Age	Total Deployed
Backpack	Female	Adult	123
Backpack	Female	Juvenile	41
Backpack	Male	Adult	2
Backpack	Male	Juvenile	4
Necklace	Female	Adult	17
Necklace	Female	Juvenile	11
Necklace	Male	Adult	29
Necklace	Male	Juvenile	17

Table S2. Comparison of models describing post-capture survival in wild turkeys captured in winter 2018-2020 in Maine. Models included individual covariates with and without an interaction term for natural log of day. Models are presented with associated AICc score, Δ AICc, model weight, cumulative model weight, and deviance.

Model	k	AICc	DeltaAICc	w	Deviance
~LN + HandTime	3	361.856	0.000	0.618	355.852
~LN * HandTime	4	363.605	1.750	0.257	355.599
~LN + Adult	3	368.005	6.149	0.029	362.001
~LN + Backpack	3	368.574	6.718	0.021	362.570
~LN * Backpack	4	368.827	6.971	0.019	360.820
~LN * Adult	4	369.768	7.912	0.012	361.761
~LN + Group	3	369.989	8.133	0.011	363.985
~LN * Group	4	371.634	9.778	0.005	363.628
~LN + Prcp.Week	3	371.756	9.900	0.004	365.752
~LN + Tavgl.Week	3	372.815	10.959	0.003	366.811
~LN + BodyCon	3	372.958	11.102	0.002	366.954
~LN + Male	3	373.052	11.196	0.002	367.048
~LN * Prcp.Week	4	373.576	11.721	0.002	365.570
~LN * REV	4	373.803	11.947	0.002	365.796
~LN	2	374.386	12.530	0.001	370.384
~HandTime	2	374.518	12.662	0.001	370.516
~LN + MG	3	374.546	12.691	0.001	368.542
~LN * Tavgl.Week	4	374.613	12.758	0.001	366.607
~LN * Male	4	374.860	13.004	0.001	366.853
~LN * BodyCon	4	374.868	13.013	0.001	366.862
~LN + Tavgl.Day	3	374.890	13.034	0.001	368.886
~LN * MG	4	374.898	13.043	0.001	366.892
~LN + REV	3	374.927	13.072	0.001	368.923
~LN + Prcp.Day	3	375.096	13.241	0.001	369.093
~LN + SampType	5	375.126	13.270	0.001	365.116
~LN + LPDV	3	375.856	14.000	0.001	369.852
~LN + Hematoma	3	376.045	14.189	0.001	370.041
~LN + YearDay	3	376.210	14.354	0.000	370.206
~LN * Tavgl.Day	4	376.886	15.030	0.000	368.879
~LN * Prcp.Day	4	377.010	15.155	0.000	369.004
~LN * Hematoma	4	377.020	15.165	0.000	369.014
~LN * LPDV	4	377.152	15.297	0.000	369.146
~LN * YearDay	4	377.916	16.060	0.000	369.909

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~LN * SampType	8	378.606	16.751	0.000	362.583
~LN + Study.Area	8	379.668	17.812	0.000	363.644
~Adult	2	380.832	18.976	0.000	376.830
~Backpack	2	381.659	19.803	0.000	377.657
~Group	2	383.152	21.296	0.000	379.150
~Prp.Week	2	384.923	23.067	0.000	380.921
~LN * Study.Area	14	385.691	23.835	0.000	357.623
~Tavg.Week	2	385.904	24.048	0.000	381.902
~BodyCon	2	386.149	24.293	0.000	382.147
~Male	2	386.353	24.498	0.000	382.351
~1	1	387.848	25.993	0.000	385.848
~MG	2	387.941	26.086	0.000	383.939
~SampType	4	388.171	26.315	0.000	380.164
~Tavg.Day	2	388.195	26.339	0.000	384.193
~REV	2	388.296	26.441	0.000	384.294
~Prp.Day	2	388.443	26.587	0.000	384.441
~LPDV	2	389.289	27.434	0.000	385.287
~Hematoma	2	389.500	27.644	0.000	385.498
~YearDay	2	389.656	27.800	0.000	385.654
~Study.Area	7	392.824	30.969	0.000	378.806

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Table S3. Comparison of models describing post-capture survival in wild turkeys captured in winter 2018-2020 in Maine. The full model set included a combinations of all covariates, with a limit of 3 additional covariates total. Models are presented with associated AICc score, $\Delta AICc$, model weight, cumulative model weight, and deviance. Only models holding 95% of the explanatory weight are shown.

Model	k	AICc	DeltaAICc	weight	Cumulative Weight	Deviance
~LN + HandTime + Adult + Backpack	5	349.989	0.000	0.440	0.440	339.979
~LN + HandTime + Prcp.Week + Backpack	5	353.385	3.396	0.080	0.520	343.375
~LN + HandTime + Adult + Male	5	354.875	4.886	0.038	0.558	344.865
~LN + HandTime + Tavg.Week + Backpack	5	355.781	5.792	0.024	0.583	345.772
~LN + HandTime + LPDV + Adult	5	355.821	5.832	0.024	0.606	345.811
~LN + HandTime + BodyCon + Backpack	5	356.163	6.174	0.020	0.626	346.153
~LN + HandTime + Backpack	4	356.542	6.553	0.017	0.643	348.535
~LN + HandTime + Tavg.Week + Adult	5	356.920	6.931	0.014	0.657	346.910
~LN + HandTime + SampType + Backpack	7	357.199	7.210	0.012	0.669	343.181
~LN + HandTime + MG + Backpack	5	357.283	7.294	0.011	0.680	347.274
~LN + Hematoma + HandTime + Backpack	5	357.356	7.367	0.011	0.691	347.347
~LN + HandTime + BodyCon + Adult	5	357.491	7.502	0.010	0.702	347.482
~LN + HandTime + Prcp.Week + Adult	5	357.506	7.517	0.010	0.712	347.497
~LN + Prcp.Day + Adult + Backpack	5	357.555	7.566	0.010	0.722	347.545
~LN + BodyCon + Adult + Backpack	5	357.558	7.569	0.010	0.732	347.548
~LN + HandTime + Prcp.Day + Backpack	5	357.584	7.595	0.010	0.742	347.575
~LN + HandTime + Prcp.Week + Male	5	357.739	7.750	0.009	0.751	347.730
~LN + HandTime + Adult	4	357.783	7.794	0.009	0.760	349.777
~LN + HandTime + REV + Backpack	5	357.889	7.900	0.008	0.768	347.880
~LN + HandTime + Tavg.Day + Backpack	5	358.012	8.023	0.008	0.776	348.002
~LN + HandTime + Prcp.Week + BodyCon	5	358.052	8.063	0.008	0.784	348.043
~LN + Hematoma + HandTime + Adult	5	358.165	8.176	0.007	0.791	348.155
~LN + HandTime + LPDV + Backpack	5	358.270	8.281	0.007	0.798	348.260
~LN + HandTime + Group + Backpack	5	358.282	8.293	0.007	0.805	348.272
~LN + HandTime + MG + Adult	5	358.366	8.377	0.007	0.812	348.356
~LN + HandTime + Male + Backpack	5	358.473	8.483	0.006	0.818	348.463
~LN + YearDay + HandTime + Backpack	5	358.545	8.556	0.006	0.824	348.535
~LN + HandTime + REV + Adult	5	358.547	8.558	0.006	0.831	348.537

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~LN + Prcp.Week + Adult + Backpack	5	358.581	8.592	0.006	0.837	348.572
~LN + LPDV + Adult + Backpack	5	358.692	8.703	0.006	0.842	348.683
~LN + HandTime + Tavg.Week + Male	5	358.756	8.767	0.005	0.848	348.746
~LN + SampType + Adult + Backpack	7	359.038	9.049	0.005	0.852	345.020
~LN + HandTime + Tavg.Week + BodyCon	5	359.056	9.067	0.005	0.857	349.047
~LN + HandTime + Prcp.Day + Adult	5	359.086	9.097	0.005	0.862	349.076
~LN + HandTime + Group + Adult	5	359.513	9.524	0.004	0.866	349.503
~LN + HandTime + Tavg.Day + Adult	5	359.530	9.541	0.004	0.869	349.520
~LN + Adult + Backpack	4	359.537	9.548	0.004	0.873	351.530
~LN + HandTime + Tavg.Day + Tavg.Week	5	359.601	9.612	0.004	0.877	349.592
~LN + HandTime + MG + Tavg.Week	5	359.616	9.627	0.004	0.880	349.607
~LN + Group + Adult + Backpack	5	359.619	9.630	0.004	0.884	349.610
~LN + Hematoma + Adult + Backpack	5	359.656	9.667	0.003	0.887	349.647
~LN + HandTime + Prcp.Week	4	359.721	9.732	0.003	0.891	351.715
~LN + YearDay + HandTime + Adult	5	359.741	9.752	0.003	0.894	349.732
~LN + HandTime + Prcp.Week + Tavg.Week	5	359.825	9.836	0.003	0.897	349.815
~LN + HandTime + Male	4	360.110	10.121	0.003	0.900	352.104
~LN + HandTime + BodyCon + Male	5	360.179	10.190	0.003	0.903	350.169
~LN + MG + Adult + Backpack	5	360.267	10.278	0.003	0.905	350.257
~LN + HandTime + Tavg.Week	4	360.280	10.291	0.003	0.908	352.274
~LN + HandTime + SampType + Adult	7	360.404	10.415	0.002	0.910	346.386
~LN + Tavg.Week + Adult + Backpack	5	360.495	10.506	0.002	0.913	350.486
~LN + HandTime + MG + Prcp.Week	5	360.503	10.514	0.002	0.915	350.493
~LN + REV + Adult + Backpack	5	360.697	10.708	0.002	0.917	350.688
~LN + HandTime + LPDV + Prcp.Week	5	360.716	10.727	0.002	0.919	350.707
~LN + Hematoma + HandTime + Tavg.Week	5	360.718	10.729	0.002	0.921	350.708
~LN + Hematoma + HandTime + Male	5	360.843	10.854	0.002	0.923	350.833
~LN + HandTime + MG + Male	5	360.959	10.970	0.002	0.925	350.949
~LN + HandTime + REV + Prcp.Week	5	360.961	10.972	0.002	0.927	350.951
~LN + YearDay + HandTime + Tavg.Week	5	361.078	11.089	0.002	0.928	351.068
~LN + Tavg.Day + Adult + Backpack	5	361.087	11.098	0.002	0.930	351.078
~LN + Hematoma + HandTime + Prcp.Week	5	361.158	11.169	0.002	0.932	351.148
~LN + HandTime + BodyCon	4	361.175	11.186	0.002	0.933	353.168
~LN + HandTime + REV + Tavg.Week	5	361.186	11.197	0.002	0.935	351.176
~LN + HandTime + Prcp.Week + Group	5	361.198	11.209	0.002	0.937	351.188
~LN + HandTime + MG + BodyCon	5	361.256	11.267	0.002	0.938	351.246
~LN + YearDay + Adult + Backpack	5	361.341	11.352	0.002	0.940	351.331
~LN + Adult + Male + Backpack	5	361.502	11.513	0.001	0.941	351.493
~LN + HandTime + Prcp.Day + Male	5	361.508	11.519	0.001	0.942	351.498

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~LN + HandTime + Prcp.Week + Tavg.Day	5	361.546	11.557	0.001	0.944	351.536
~LN + HandTime + Tavg.Day + Male	5	361.583	11.594	0.001	0.945	351.573
~LN + YearDay + HandTime + Prcp.Week	5	361.671	11.682	0.001	0.946	351.661
~LN + HandTime + Tavg.Week + Group	5	361.708	11.719	0.001	0.948	351.698
~LN + HandTime + Prcp.Day + Prcp.Week	5	361.717	11.728	0.001	0.949	351.707
~LN + HandTime + Prcp.Week + SampType	7	361.730	11.741	0.001	0.950	347.712