

Appendix

Step by Step: Using Integrated Step Selection Analysis to Simulate Wild Dog Dispersal and Assess Landscape Connectivity

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Running Title: Simulating Wild Dog Dispersal.

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corridors, *Lycaon pictus*, permeability surface, protected areas, wildlife management

A.1 Movement Models

Table S1: Results from the forward model selection procedure based on Akaike's Information Criterion (AIC; Burnham and Anderson, 2002) for the movement model. The base model upon which we based our movement model is depicted in the last row. We omitted all models with an AIC weight of zero.

Covariates	AIC	ΔAIC	Weight	LogLik
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta)	89392.88	0.00	0.15	-44670.44
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + SH:log(sl)	89393.92	1.04	0.09	-44669.96
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + DTW:log(sl)	89394.13	1.25	0.08	-44670.06
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + WO:log(sl)	89394.25	1.37	0.08	-44670.13
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + HI:log(sl)	89394.36	1.48	0.07	-44672.18
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl	89394.44	1.56	0.07	-44670.22
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + log(sl):LA	89394.56	1.68	0.07	-44670.28
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + HI:sl	89394.57	1.69	0.07	-44670.29
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + WO:cos(ta)	89394.59	1.71	0.07	-44670.30
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + WA:cos(ta)	89394.63	1.75	0.06	-44670.31
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + WA:log(sl)	89394.68	1.80	0.06	-44672.34
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + sl:cos(ta) + HI:log(sl)	89394.69	1.81	0.06	-44670.35
Base Model + sl:LA + WA:sl + log(sl):cos(ta) + DTW:cos(ta) + WO:sl + HI:cos(ta) + SH:sl + DTW:sl + sl:cos(ta) + SH:cos(ta)	89394.84	1.96	0.06	-44670.42
:	:	:	:	:
Base Model: cos(ta) + sl + log(sl) + WA + WO + DTW + HI + SH	90091.40	787.67	0.00	-45030.70

Note: ta = Turning Angle, sl = Step Length, LA = Low Activity, WA = Water, DTW = Distance To Water, SH = Shrubs/Grassland, WO = Woodland, HI = Human Influence.

A.2 Evolution of Heatmaps

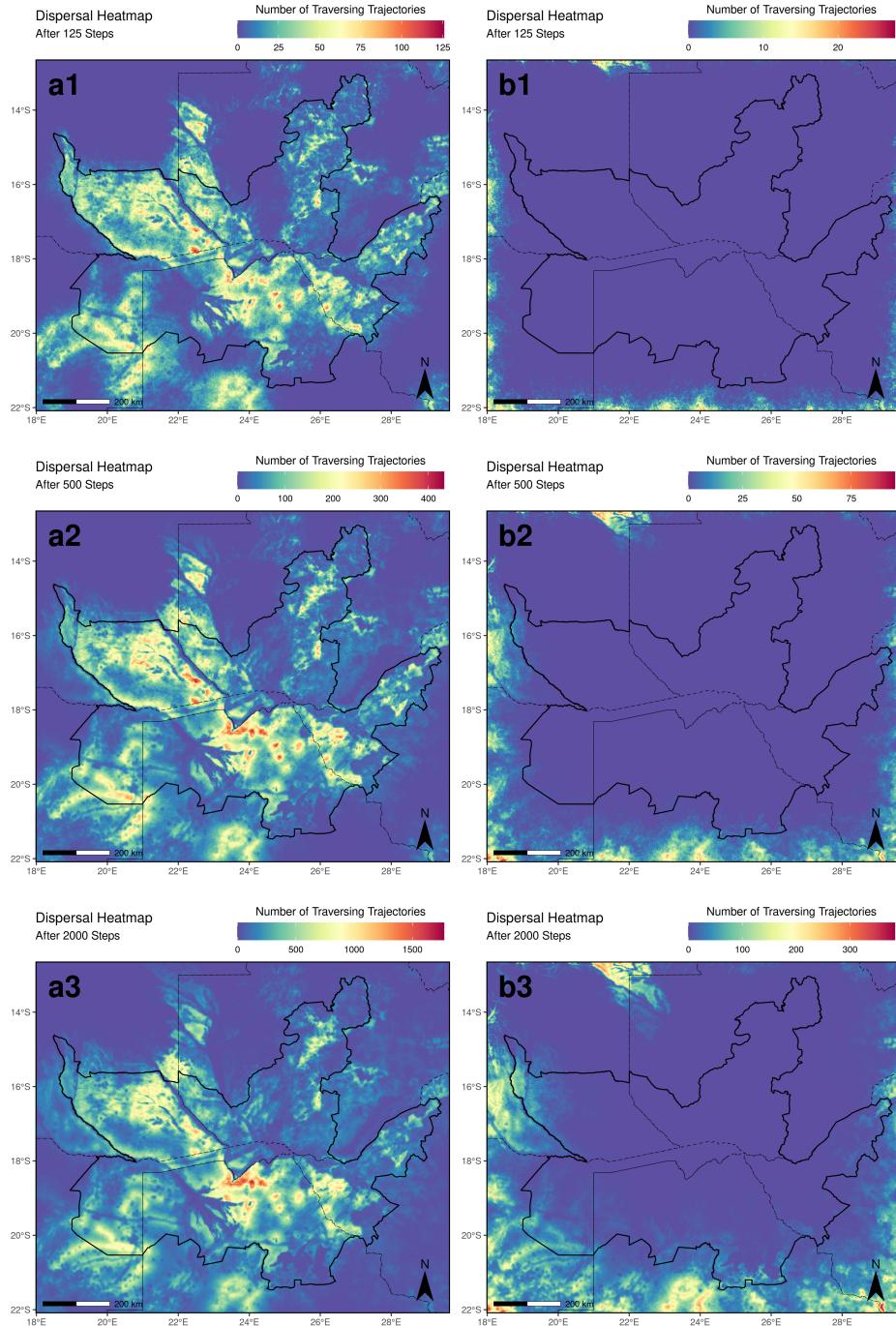


Figure S1: Heatmaps produced after 125, 500, and 2000 simulated steps, respectively. The left panel was generated based on simulations initiated within the main study area, the right panel was generated based on simulations initiated within the buffer area. To produce the heatmap presented in the main text, we summed up values from maps a3 and b3.

A.3 Evolution of Betweenness

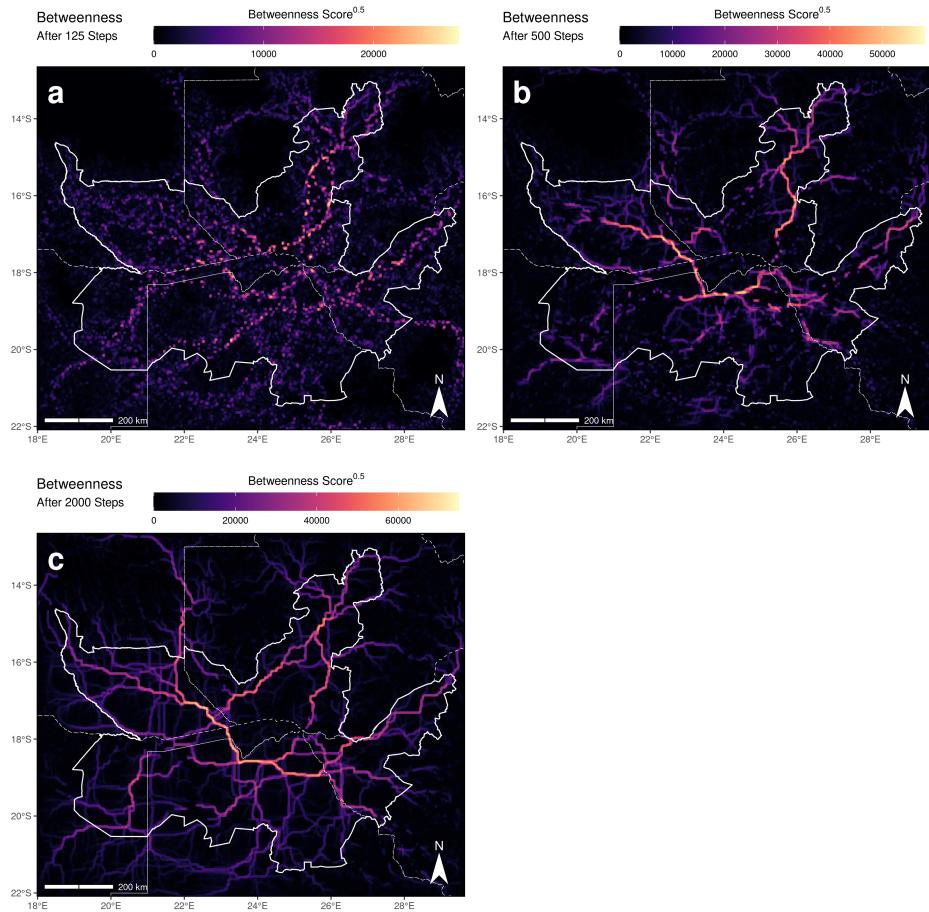


Figure S2: Maps of betweenness scores produced after 125, 500, and 2000 simulated steps, respectively.

References

- Burnham, K. P. and Anderson, D. R. (2002). *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach*. Springer Science & Business Media, Ney York, NY, USA.