**Supplementary Tables and Figures**

**Table S1** Summary of environmental predictors used in species distribution modelling for blue whale and elephant case studies. Spatial resolution is in decimal degrees.



**Table S2.** Validation metrics for spatial and temporal hold-out approaches. Temporal hold-out not available for the average elephant model as predictor variables are not dynamically measured.



Chart

Description automatically generated**Figure S1** Partial response curves for the two most important covariates in the blue whale (a-d) and elephant (e-h) habitat suitability models. Response curves for GAMMS (left panels; A,B,E,F), and BRTs (right panels; C,D,G,H) are shown for thefour pseudo-absences generation techniques (Background in red, Buffer in gray, CRW in green, Reverse CRW in blue).

D

H

G

F

E

A

B

C