

**Supporting Information.** Integrating resource memory and cue-based territoriality to simulate individual movement dynamics: a process-explicit and pattern-oriented approach.

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## Data S1

### **R code for movement model output analyses and associated output files\*.**

\*Raw simulation and analytical output data were not included due to large file size (>50GB) but will be uploaded together with the material in DataS1.zip onto a public repository (Zenodo) upon acceptance.

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### **File list (files found within repository)**

| <b>File</b>              | <b>Description</b>   |
|--------------------------|--|
| Data                     | Sub-directory containing output data files.  |
| Data/CatLand.csv         | Resource landscape used for feral cat simulations  |
| Data/Expt1.RData         | File containing output data from Theoretical Example 1.  |
| Data/Expt2.RData         | File containing output data from Theoretical Example 2.  |
| Data/SA_indivMetrics.csv | File containing individual-level movement statistics calculated from Sensitivity Analysis simulations.   |
| Data/SA_repMeans.csv     | File containing replicate-level movement statistics summarised from Data/SA_indivMetrics.csv.  |
| Data/BRTresults.RData    | File containing boosted regression tree (BRT) model output for each summary statistic.   |
| Data/realdata.csv        | Feral cat GPS location data  |
| R                        | Sub-directory containing code for data processing, analyses, evaluation and plotting.  |
| R/0_functions.R          | R code containing functions for generating output for theoretical examples, calculating summary statistics for sensitivity analysis, running multiple BRT models per summary statistic, evaluating cross-validation statistics for each model per summary statistics and plotting figures. |
| R/1_TheoreticalEgs.R     | R code to run analysis for theoretical examples.   |
| R/2_BRT.R                | R code to run boosted regression tree (BRT) analyses for sensitivity analysis.   |
| R/3_Calibrate.R          | R code to calculate target values from the empirical feral cat data and to optimise to target values using BRT models.   |
| R/4_Validate.R           | R code to compare simulated to empirical data.   |