Cueing on distant conditions before migrating does not prevent false starts: a case study with African elephants

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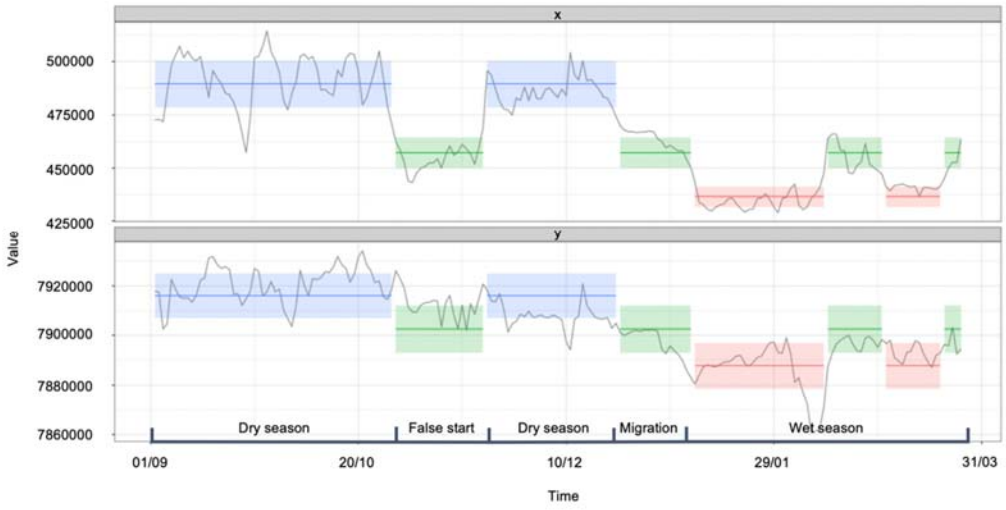
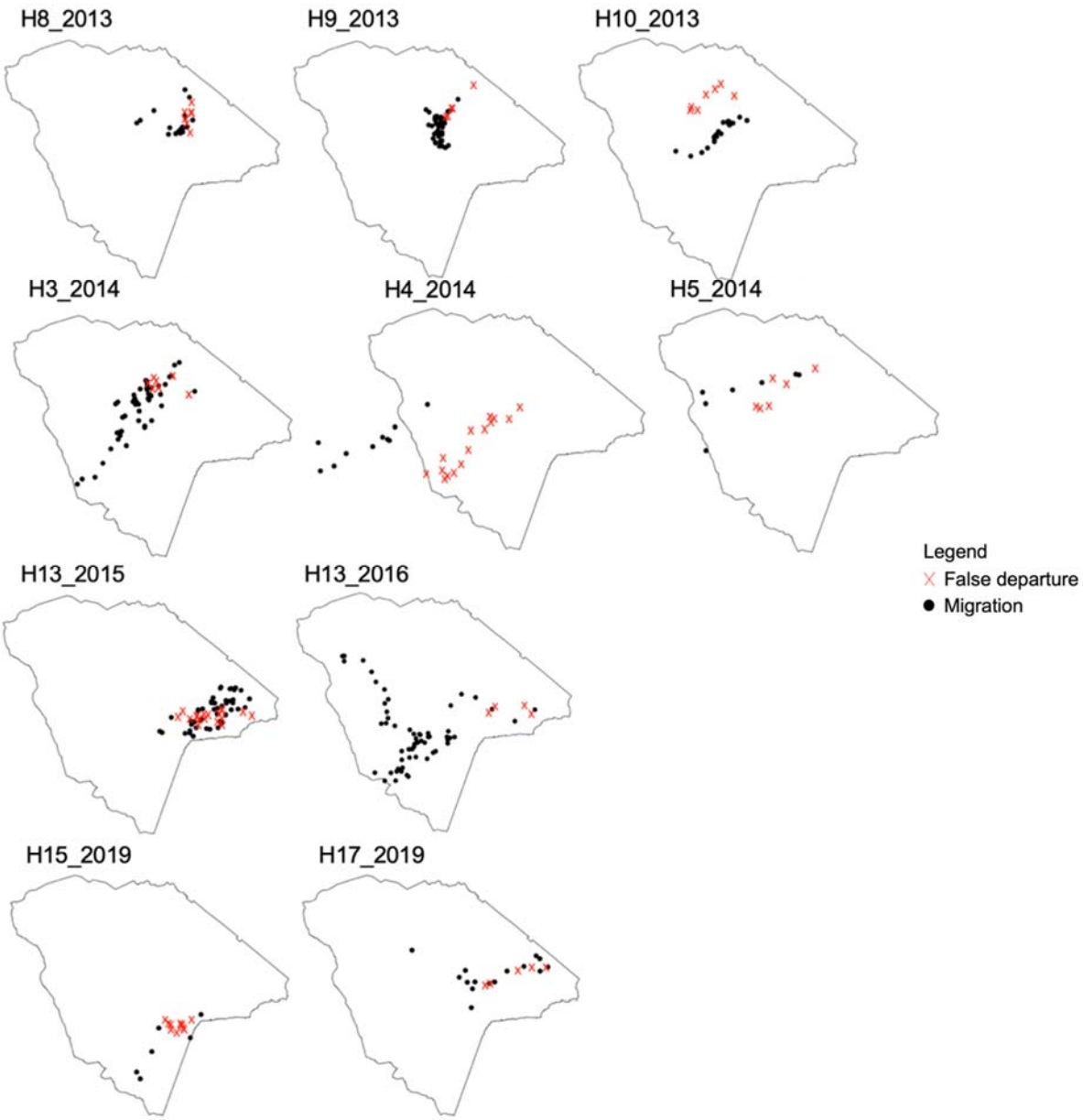
Electronic Supplemental Material

ESM1: Illustration of a typical output of a migration trajectory, which includes a false departure, segmented using the segclust2d algorithm. The segmentation was run on location data collected between the 1st of September and the 31st of March of the following year. In both panels, the thin line is the time-series of locations' longitude (top panel) and latitude (bottom panel), both projected in the WGS84/UTM35S coordinate system. Colors represent the segmentation obtained from the algorithm. Segments sharing the same color were identified as being in the same cluster of locations, i.e., in the same area.



ESM2: Locations recorded during the migration and false departures. The black dots represent the locations recorded from the first day of the migration to the arrival into the wet home range. The red crosses represent the locations recorded during the false departure, from the first location until the elephant turned around.

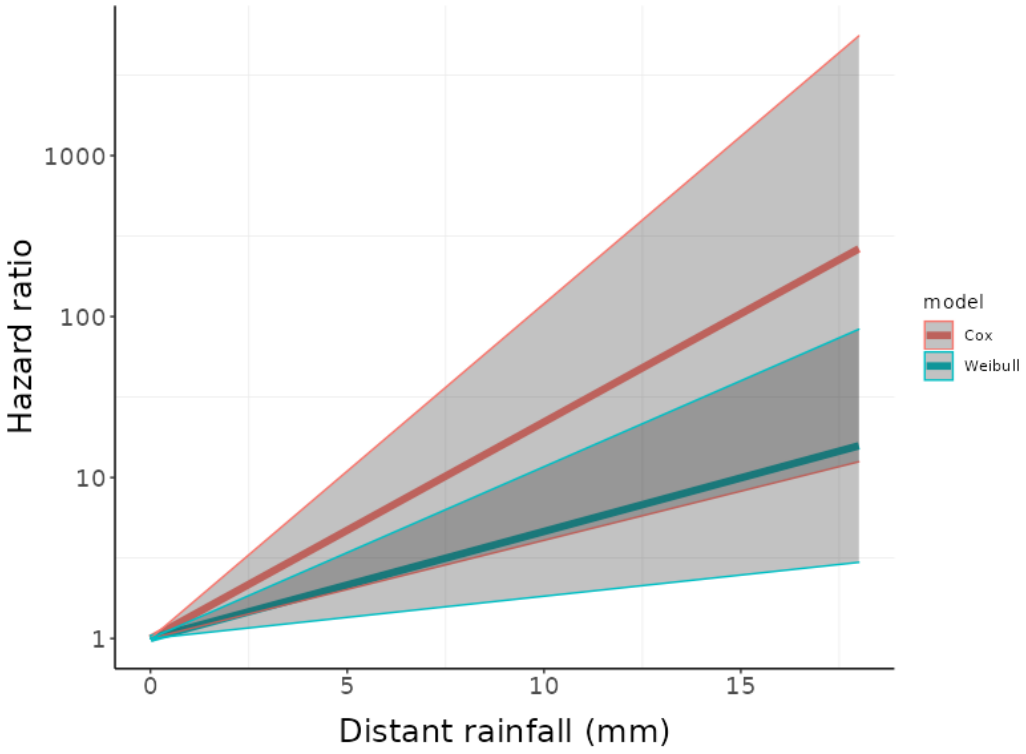


ESM3: AICc and coefficients from exponential or Weibull models. Models are ordered by increasing AICc values. Note that the AICc values of exponential or Weibull models (based on full likelihood estimation) cannot be compared with those from Cox models (estimated using partial likelihoods).

Model and predictor	AICc	Coefficient
Weibull - distant rainfall	245.71	0.15
Weibull - local rainfall	250.41	0.08
Weibull - null	250.88	
Weibull - acc. local rainfall	251.61	-0.02
Weibull - acc. distant rainfall	252.21	-0.01
Exponential - acc. distant rainfall	273.16	0.04
Exponential - acc. local rainfall	276.77	0.03
Exponential - distant rainfall	276.93	0.25
Exponential - local rainfall	285.97	0.17
Exponential - null	295.70	

Weibull models always had lower AICc values than exponential models. Weibull models were ordered, based on AICc values, as Cox models were (compare with Table 1 in main text), with the model with distant rainfall as predictor being the best model. Note also that the model with local rainfall as predictor was not better than the null model.

Results from the Cox and Weibull models that use distant rainfall as predictor are compared in the figure below:



ESM4: Comparisons of the estimated effects of predictors in model 1 to 4. Model 2 is the best model, based on AICc values. See main text for details.