

# Notebook 8.11

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To do this week:

- submit abstract week of 8.11.21
- SAB talks meeting
- extracting data from associations to create new akdes
- continue cleaning data for unflanged males
- review BEAS paper

*Long-call project:*

Examine spatial variation in individual's tendency to give LCs  
+ individual's responses to hearing LCs from other males

Movement and LC decisions are v. individual-specific so models should be developed so they give estimates  
+ Cred.Intervals for each orangutan

e.g. [covariate 1 + covariate 2 +covariate 3]\*Individual.ID

-this syntax (with star "\*" and not ":",) does a summary model for each individual (result is both individual-level estimates and population-level) (so we can evaluate differences between individuals, like Niko vs. Otto vs. Fugit...)

- likely not enough data for random slopes...

*Spatial variation in Long-calls given:*

-proximity to R.center/core area as spatial covariate via a raster surface -value for CDE with other males  
-value for CDE with females? Two main analysis options:

1. BYM model of LC-given spatial counts 2. use vs. availability design with non-long-call locations compared to long-call locations -response is 0/1 for presence/absence of LC-given

1. is likely preferable b/c neighboring raster cells should be similar  
also easier to set up a neighborhood matrix than it is to create loads of random pts for each individual range/time period

To do: -create akdes for each yr (or another time period)

-need to read up on CDE + how to use as predictor!!

- whether or not location overlaps w/female-infant/juvenile pair

-random points for availability via `##spsample(polygon.name,n=number.of.pts,"random")`

or with amt and convert akde to sf and run `##random_points(x, n = 100, type = "random")`

-Need to figure out what reasonable num of rand pts is... 1:1 probably makes sense

-Need to decide on time period for raster/space-use (2 yrs likely makes sense)

Similar models for LC heard except response is whether animal moves *towards or away* from LC by another individual

**-directional change** needs amt or adehabitat to calculate angles -data restricted to when there are LCs heard and response variable is (1/0 - directional change away or towards) -response could also be angle but there's little difference between going "away" from 75degrees vs. 60 degrees relative to the LC-caller

covariates: distance to R.center CDE value w/other males CDE with females

Predictions: Higher ranking(?) males should give LCs further from their HR center

Lower ranking males should give LCs towards the center of their HR