Anopheles population dynamics in Farafangana

***Anthonio Rakotoarison**, Institut Pasteur de Madagascar*

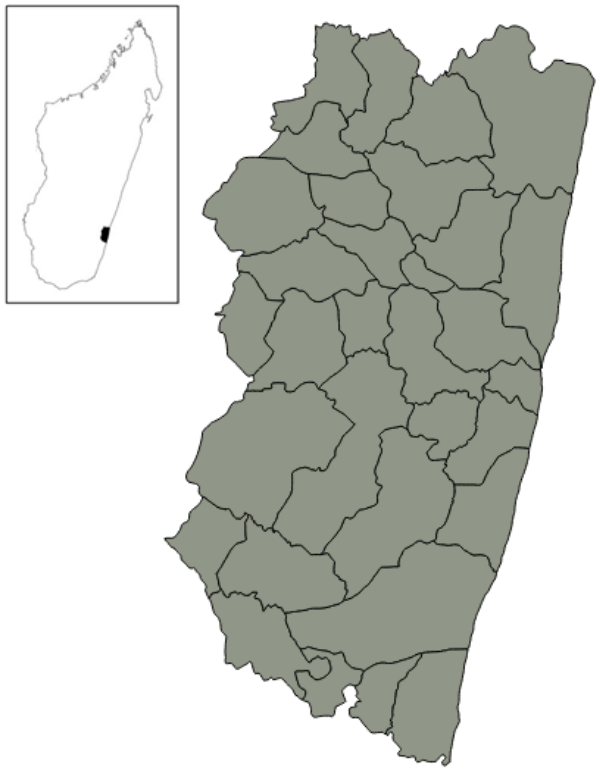
Background: Malaria remains a public health problem in Madagascar. *Anopheles* is the vector of malaria.

Statistical question: What climate and environmental factors are correlated with the density of *Anopheles* in Farafangana district?

Mechanistic question: How important is the influence of various climate and environment parameters on *Anopheles* dynamic in Farafangana district?

Acknowledgements: Feno, Liantsoa, Vero

What climate and environmental factors are correlated with the density of *Anopheles* in Farafangana district?



Response variable: density of *Anopheles*

Potential predictors: temperature, rainfall, elevation, ndvi

Family: gaussian

Link: logit

R code: lm(anopheles density ~ rainfall , temperature, elevation, ndvi, data= data.frame)

Hypothesis: climatic and environmental factors are correlated with the density of *Anopheles*.

How important is the influence of various climate and environment parameters on *Anopheles* dynamics in Farafangana district?

States

Aquatic stages

E = eggs

L = larvae

P = pupae

Adult stages (female)

NP = nulliparous

Pa = parous

Processes

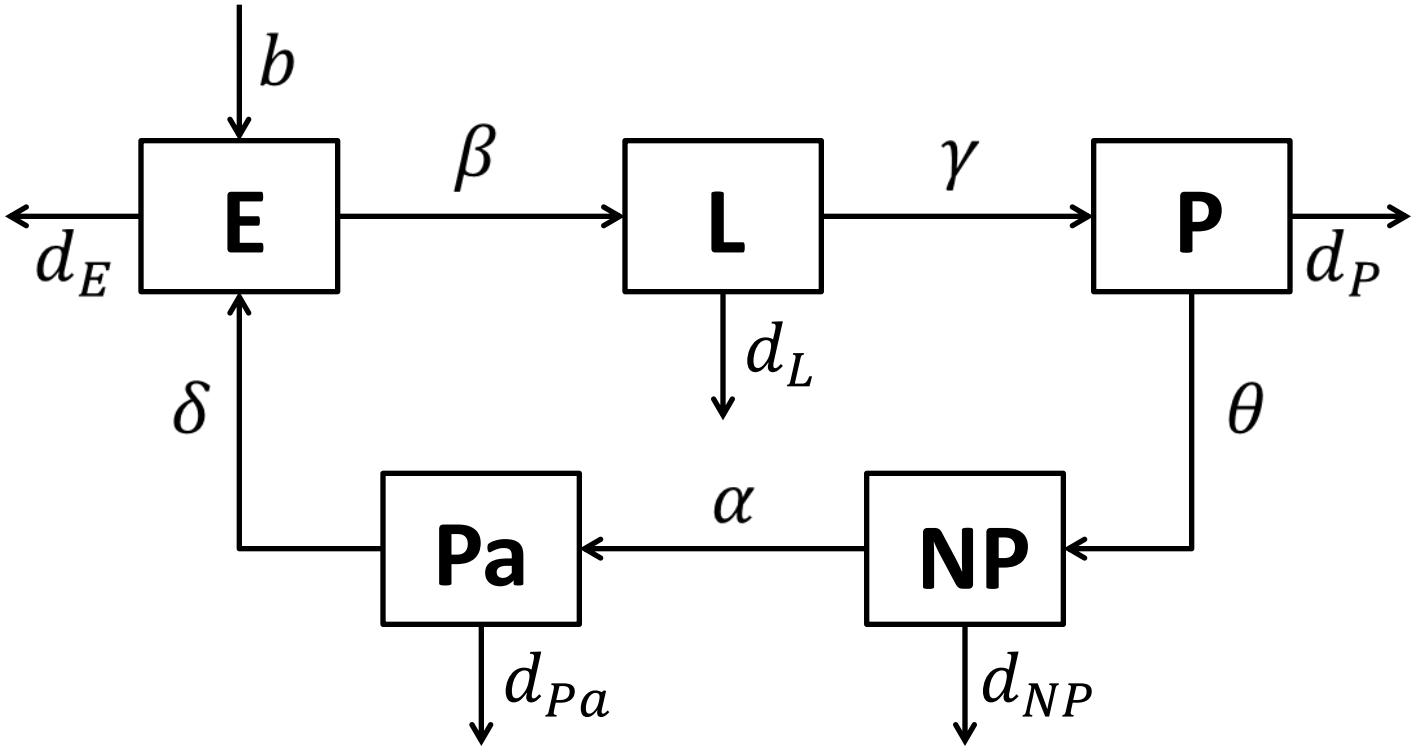
α, β, γ = transition

θ = emergence

δ = oviposition

b = birth

d = death



Next steps

- Refine the *Anopheles* population dynamics model
- Development of an epidemiological model of malaria transmission
- Coupling of the *Anopheles* population dynamics model and the epidemiological transmission model

Misaotra tompoko!