Models for abundance and habitat preference of *Aedes albopictus*

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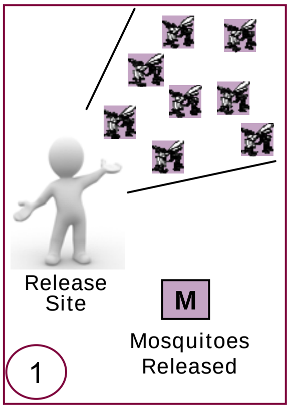
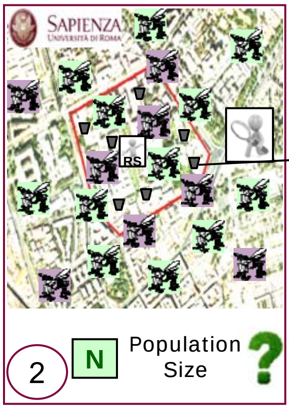
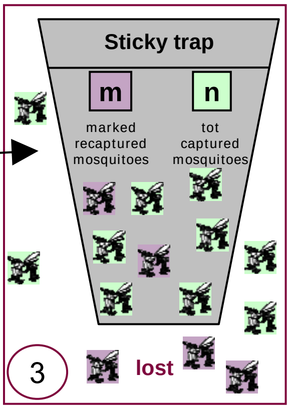
Mark Release Recapture experiment

Estimate the population size of *Aedes Albopictus*

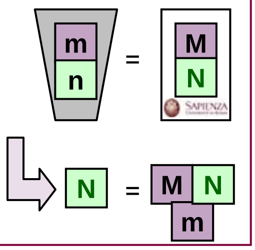
A good estimate of the population size of vectors for infectious diseases is helpful to determine prevention and control measures.







TRADITIONAL METHOD: PETERSEN & LINCOLN



LOGISTIC REGRESSION MODEL

$$\log\left(\frac{\pi}{1-\pi}\right) = (\alpha_0 + \alpha_i \cdot E_{i+1}) + t \cdot e^{\beta_0+\beta_1 \cdot dis} + \log(M)$$

+ Distance between release site and sticky trap (dis)
+ Loss rate, $\lambda=\exp(\beta_0+\beta_1 dis)$
+ Experiment (E), i=1,2,... is the number of the experiment

$$-\log(N) = \alpha_0 + \alpha_i \cdot E_{i+1} \Rightarrow N = e^{-(\alpha_0+\alpha_i \cdot E_{i+1})}$$

Estimating the population size of a vector for infectious diseases by using a logistic regression model, allows to take into account several important information and provides less uncertain estimates.

HR spatial analysis

Habitat preference of *Aedes Albopictus*

Understanding sources of spatial heterogeneity contributes to disease prevention and control.

LEGEND

- Sticky traps
- Buffer

LAND COVER

- Building
- Grass – Park
- Hedge – Bushes
- Trees – Park
- Trees – Street
- Car park
- Construction site

Statistical analysis to determine the most important factors

In collaboration with:

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Caroline Zeimes and Sophie Vanwambeke (Université catholique de Louvain, Louvain-la-Neuve)

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