

Examining the occupancy of Crested ibis in Ranomafana National Park

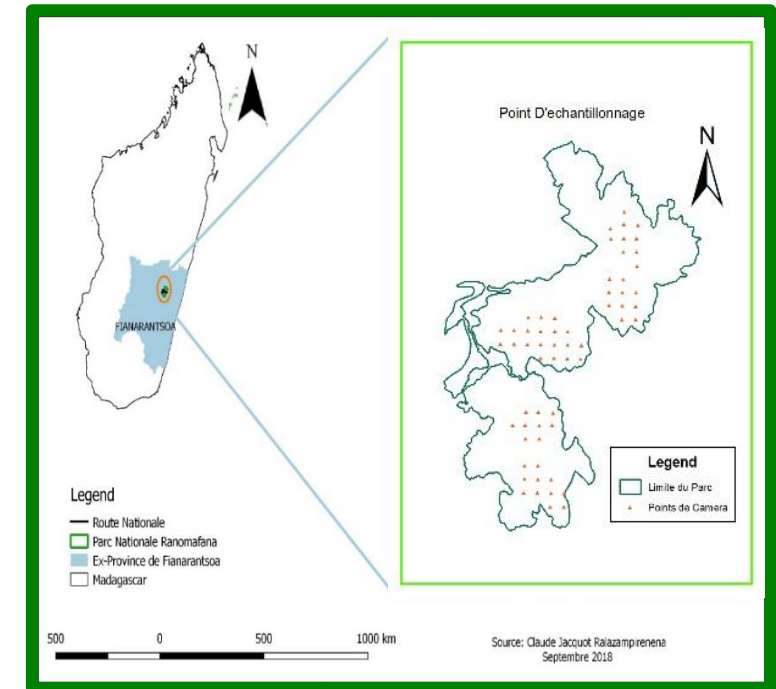
Background: Crested Ibis is endemic to Madagascar and has a large distribution across the island, but it is currently classified vulnerable by IUCN due to the destruction of their habitat and the local hunters.

1. Statistical question

What is the effect of distance from the edge of forest on the occupancy of Crested ibis in Ranomafana National Park?

2. Dynamical Model question

How does Crested ibis occupancy change over time in Ranomafana National Park?



Acknowledgement

- Instructors and Mentors
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Does distance from the edge of forest influence the occupancy for Crested ibis in Ranomafana National Park?

Predictors variable: Distance from the edge

Response variable: Presence / Absence

Distribution of the data: Binomial

Link function: logit

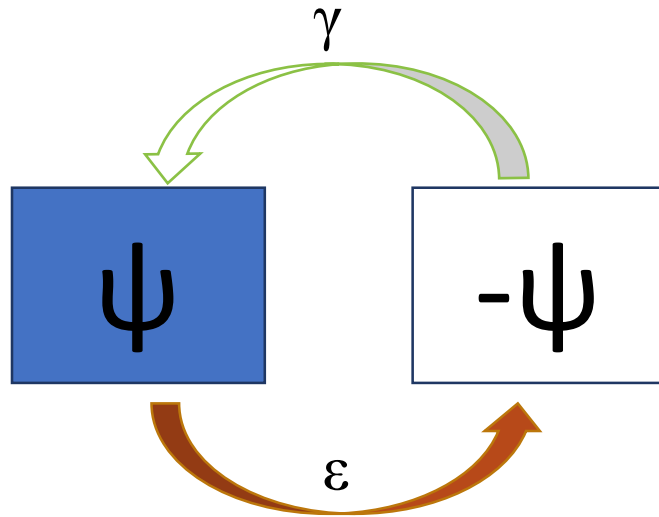
Summary of data

CT-Point	Array	Site	Ibis	D_edge
CT-RNF-1	1	s1	1	0,5
CT-RNF-2	2	s1	0	0,5
CT-RNF-3	3	s1	1	0,5
CT-RNF-4	1	s2	0	1,2
CT-RNF-5	2	s2	1	1,2
CT-RNF-6	1	s1	0	1,2
CT-RNF-7	2	s2	1	0,5
CT-RNF-8	3	s1	0	0,5
CT-RNF-9	3	s2	1	0,5
CT-RNF-10	2	s1	1	0,5

Hypothesis: We predict that probability of detection is decreasing with distance from forest edge.

R code: `glmer (Ibis~D_edge+ (1|Array|Site), family=" binomial")`

How does Crested ibis occupancy changes over time in Ranomafana National Park?



Become ψ

Become $-\psi$

$$\frac{d\psi}{dt} = \underbrace{\gamma\psi(1-\psi)}_{\text{Fraction of empty site}} - (-\psi\varepsilon)$$

Fraction of empty site

Population involve in my study:

- Occupancy
- Times

ψ : Occupied

$-\psi$: Non Occupied

Process:

ε : Extirpation

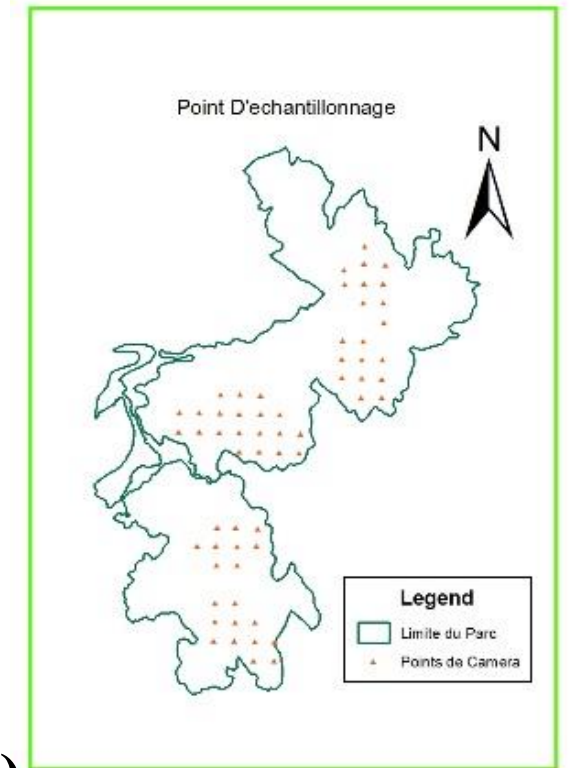
γ : Colonisation

States:

-Stable ($\varepsilon=\gamma$)

-Increases ($\varepsilon<\gamma$)

-Decreases ($\varepsilon>\gamma$)



Next Step

Study the effect of forest fragmentation in population size of
Crested Ibis

Study the **Crested ibis** multi-years co-occurrence in
Ranomafana

