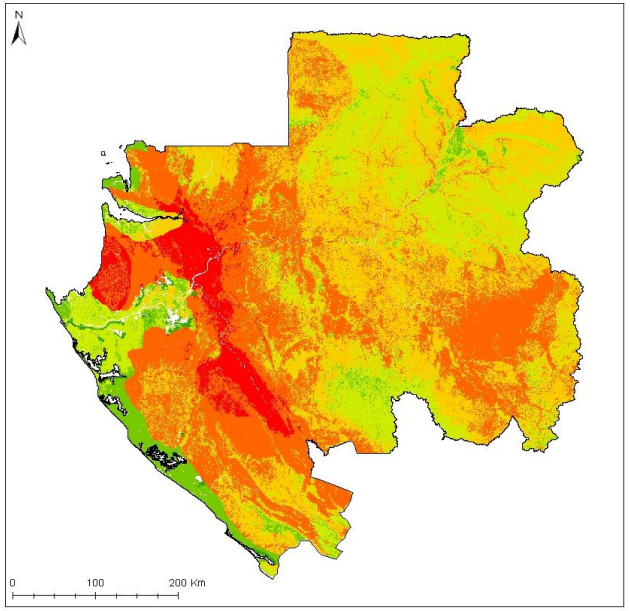


Using thresholds to map priority areas
Comment Identifier les seuils d'importance pour les zones prioritaires

Tim Rayden

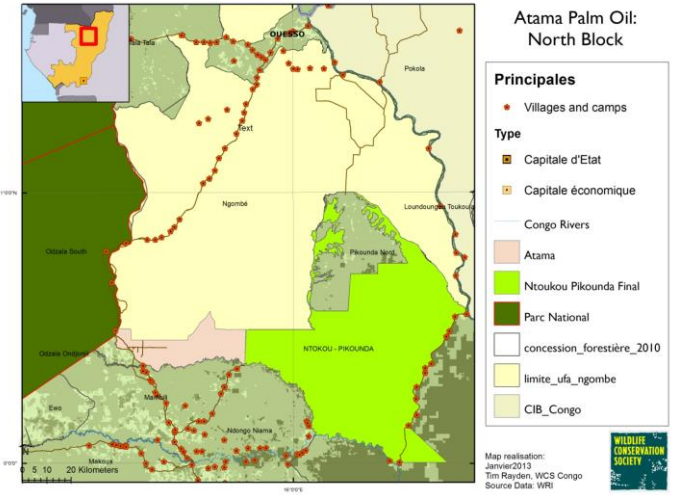
WCS Congo, May 2013

Forest conversion: a current threat



-Cost layers-
Palm Oil Suitability

Palm Oil Suitability cost
0
5
10
20
80
100
Gabon



Atama Palm Oil:
North Block

Principales
- Villages and camps

Type
- Capitale d'Etat
- Capitale économique
- Congo Rivers
- Atama
- Ntoukou Pikounda Final
- Parc National
- concession_forestière_2010
- limite_ufa_ngombe
- CIB_Congo

Map realisation:
Janvier2013
Tim Rayden, WCS Congo
Source Data: WRI

Introduction

- Modelling approaches that provide a continuous density surface can be very informative of the overall distribution and abundance of great apes across the region.

- To transform this into policy recommendations about ***land use***, two things are necessary:
  - Decisions about thresholds of significance for priority areas (Part 1)
  - *(Des seuiles d'importance pour les zones prioritaires)*
  - Decisions about what land uses should be permitted in priority areas (Part 2)
  - *(Les utilisations permis/non permis dans les zones prioritaires)*

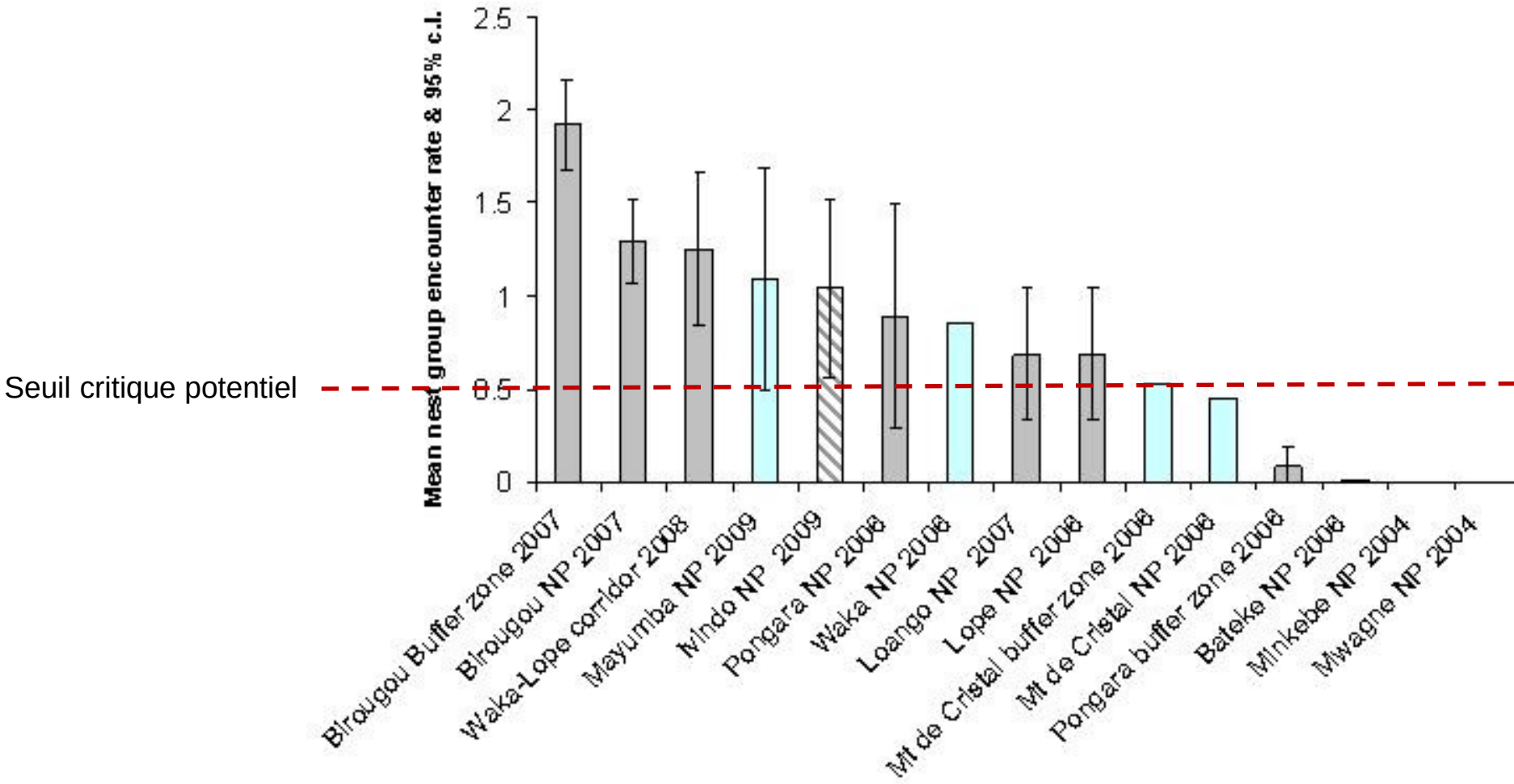
- Objective:
  - Consider land use planning approaches that can be used
  - Consider obligations for extractive industry in priority areas

Part 1 Threshold setting

Etablissement des seuilles d’importance

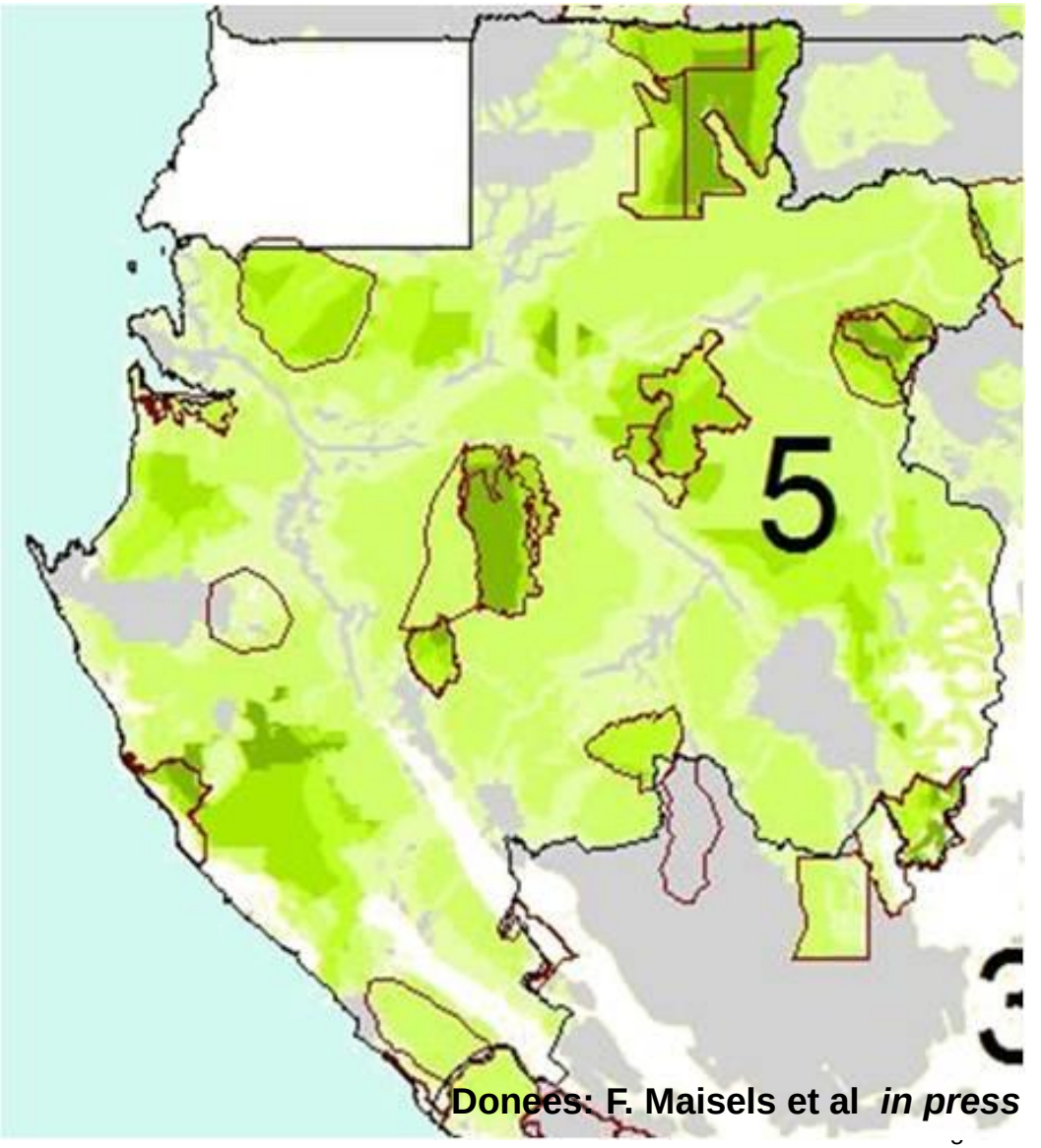
Example: simple density threshold

- Encounter rate data from ape surveys in Gabon



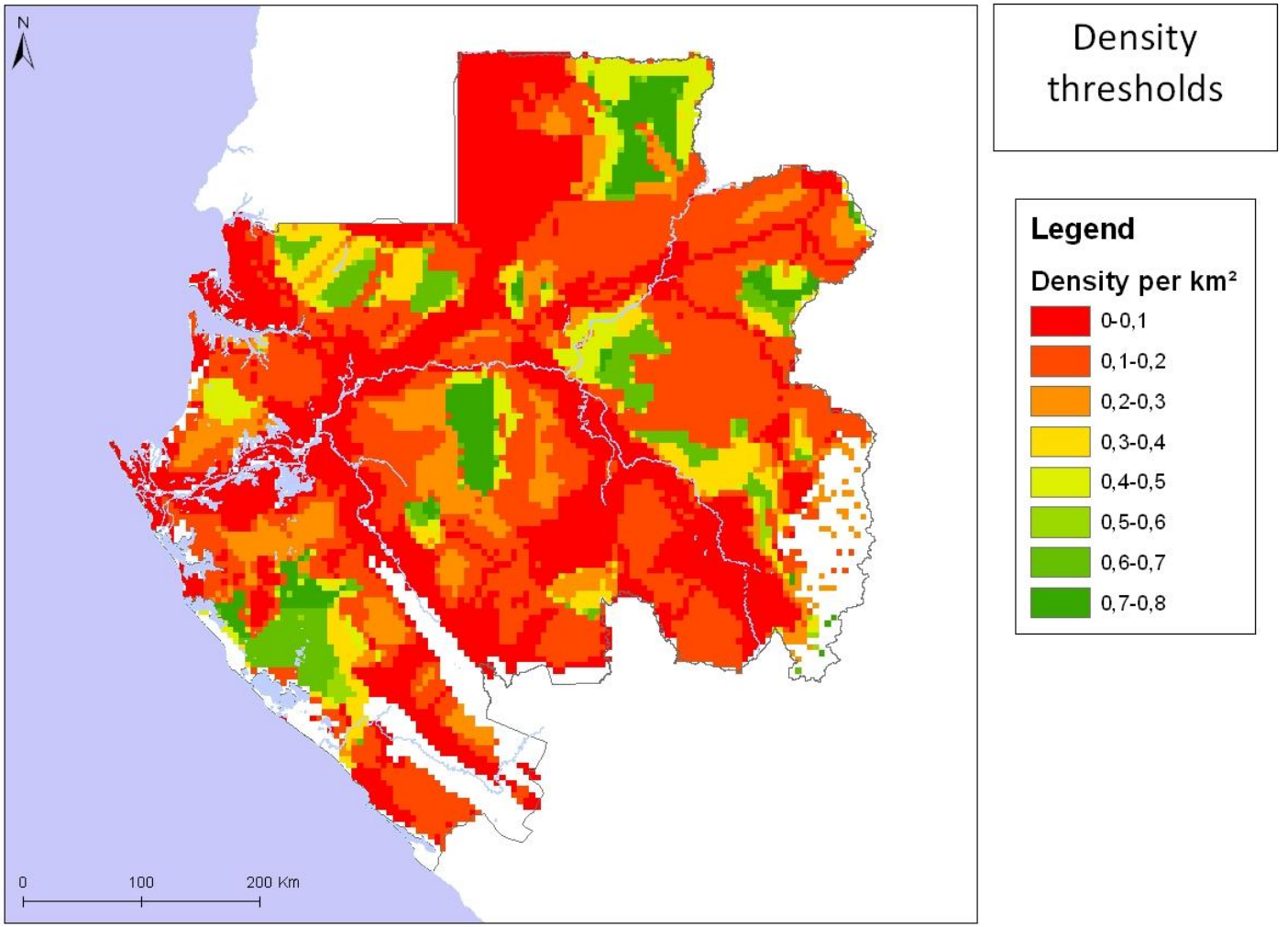
Thresholds for elephants in Gabon

- Example: Eléphants
- Density and distribution model



Simple density classes

- Model outputs in terms of elephant density per Km^2



Problems

- Density model is highly skewed: national park areas have much higher population densities than forest concessions.
- Applying a simple density threshold to this data results in selecting either the small high density areas or the very large low density areas…. It proved difficult to get a result that looked sensible!
- Approach does not take into consideration the viability of an individual population.

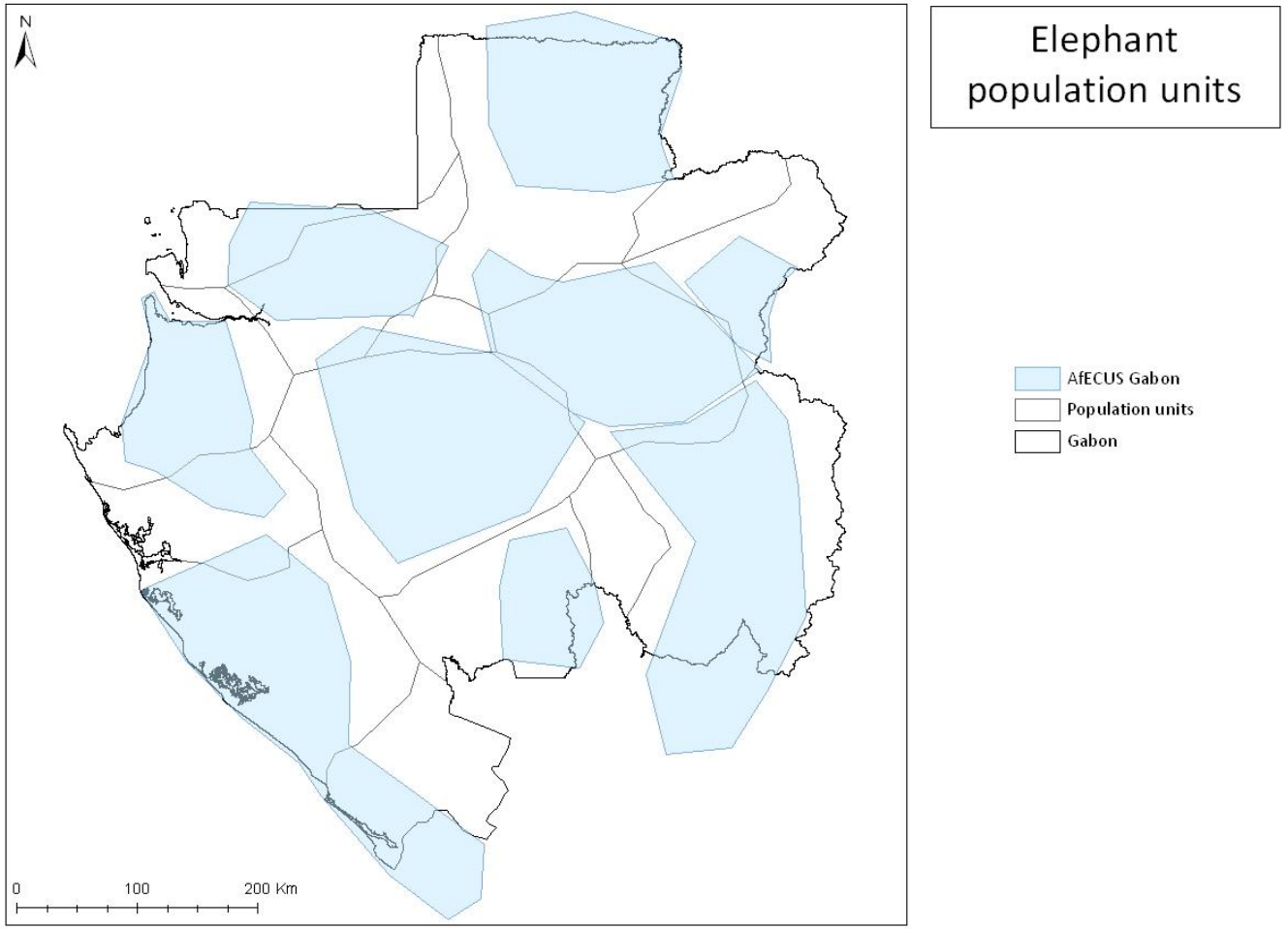
Defining population units

- Objective:
  - To ensure the areas selected as priority allow the conservation of viable population numbers
  - *Assurer que l'approche pour la sélection des zones prioritaires permet la délinéation des zones capables a soutenir des populations viables dans le longe terme*

- Defined population blocks: distinct areas of the country that are now, or are likely to be isolated from one another
- Calculated population for each block

Elephant population units in Gabon

- Gabon elephant population units derived for this project (black lines), and AfECUs (blue)



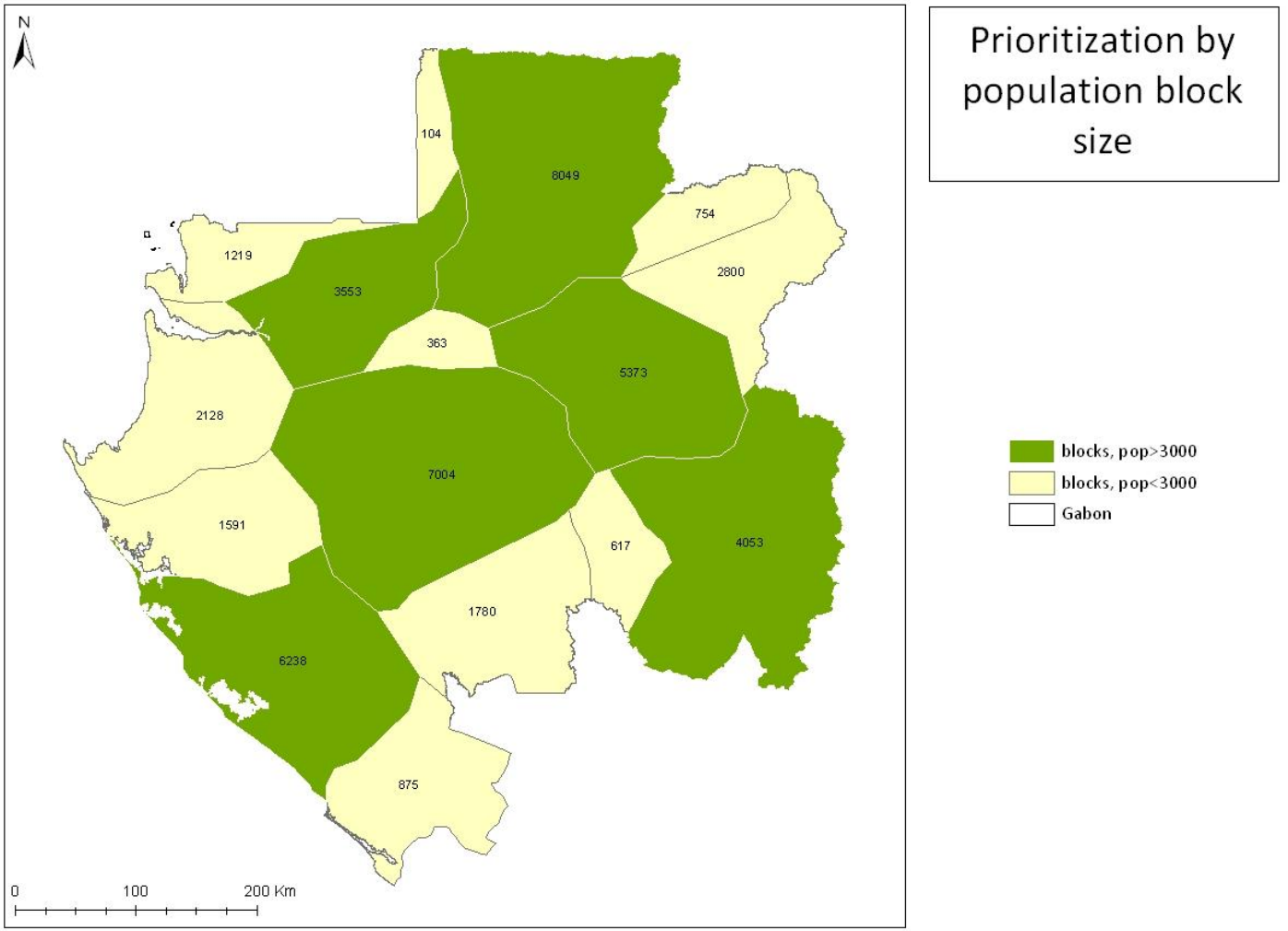
Calculating population by unit

- Simple calculation of the estimated elephant population in each population block
- One possible approach: prioritisation by population block
  - Selection of largest/most intact populations
  - Use a threshold of 3000 individuals
  - Use percentage of the gobal population

- However, this approach raises a number of problems, notably:
  - How many populations blocks are required?
  - Are the blocks with less than 3000 individuals really less important?.
  - Several thresholds (1000, 2000…) need to be mapped.

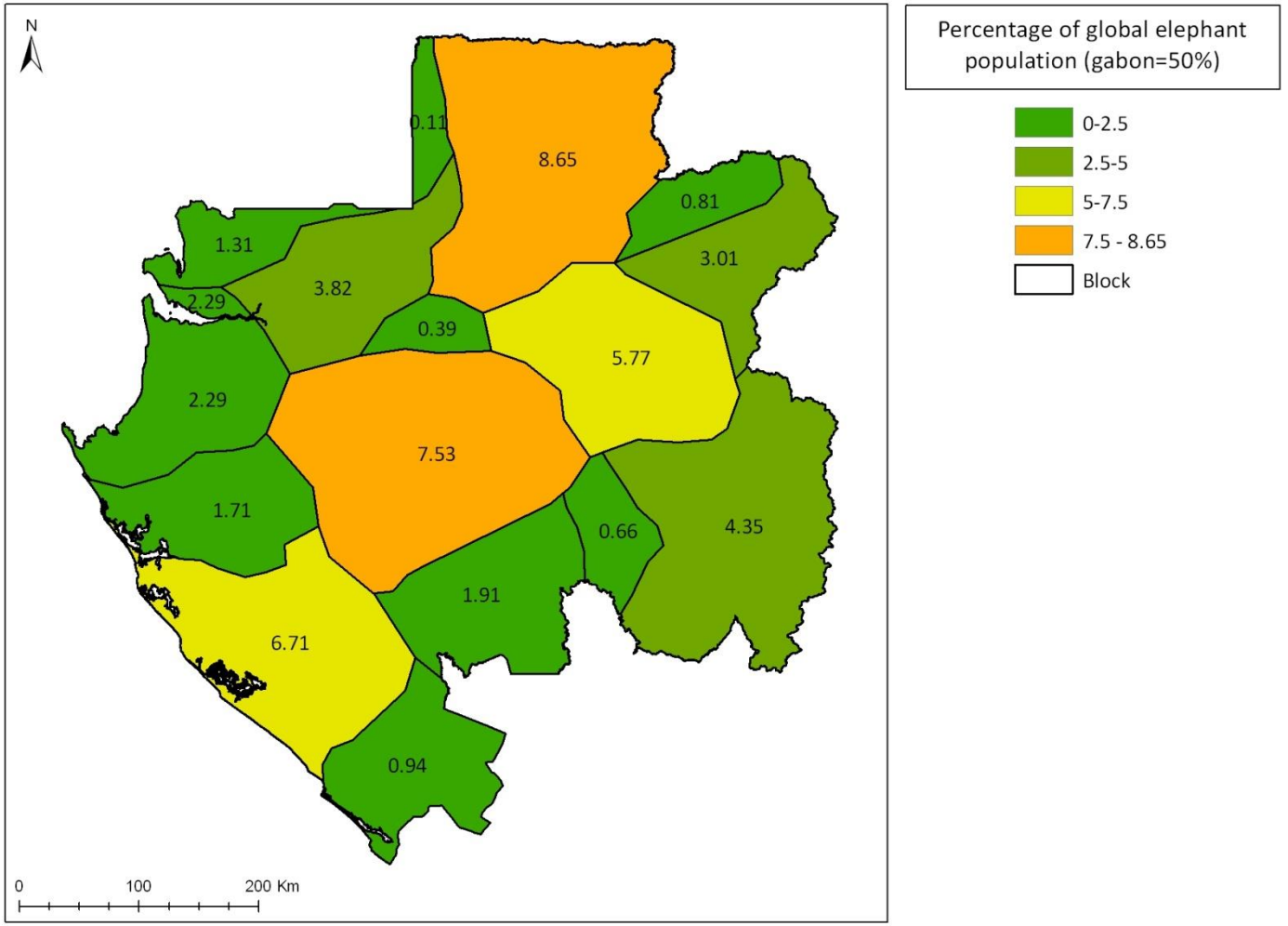
Prioritization by population block

- Simple prioritisation by population block size (3000 animal threshold)



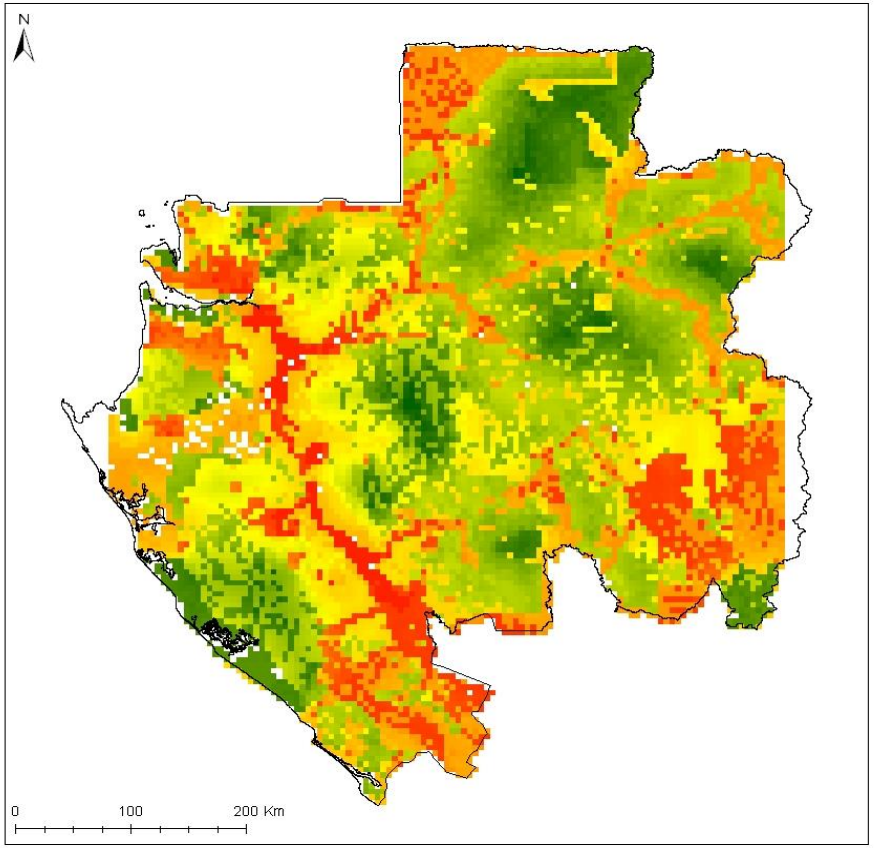
Prioritization by population block

- Prioritisation based on the percentage of global population within the block



Existing land use within blocks

- Multiple land uses within each block
- Conserving entire landscape blocks is not feasible
- Human footprint mapping



-Cost 3-
Distance to PA x 10
+ Accessibility x 20
+ Status x 40
+ Palm Oil
Suitability x 30

Dist+ Access+Status+Palm O Suit
High : 9980
Low : 530

Gabon
Gabon

Target setting within population units

- Objective:
  - Identify the best areas within each block which allow us to reach a target population
  - *Identifier les meilleures parties de chaque bloc pour atteindre une seuil de population ciblée*

- Modelling priority elephant habitat within blocks based on the human footprint
- Modelling approach allows the selection of areas of low human footprint until a target population threshold is reached.

Testing different thresholds

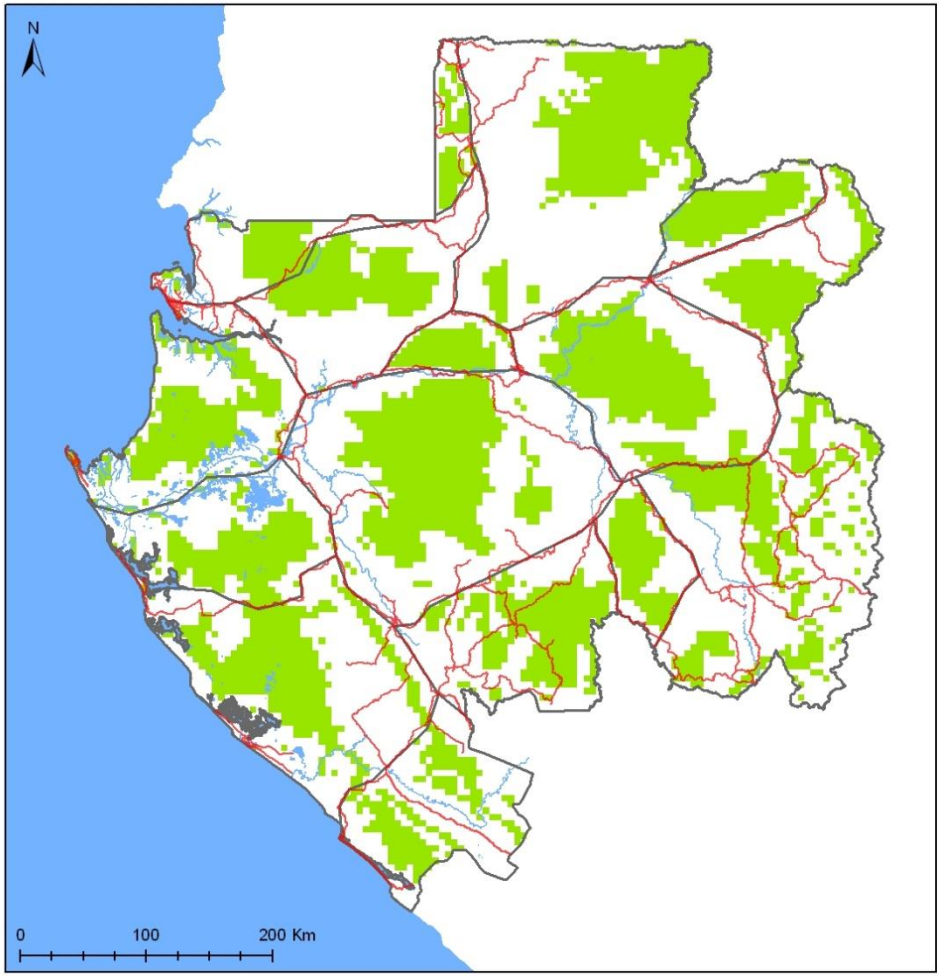
- The following maps (Gabon elephants) show the effect of modelling the area needed to support a target population (threshold) in each population unit (bloc).

- ZONATION was used to select areas within each population unit until an overall population threshold was reached within that unit.

- Thus, the areas selected are equivalent to the area needed to support 70, 80, or 90% of the elephants predicted to be present in that unit.

- Note that the this map does not attempt to prioritise ***between*** population units, and does not attach more importance to units with larger overall populations

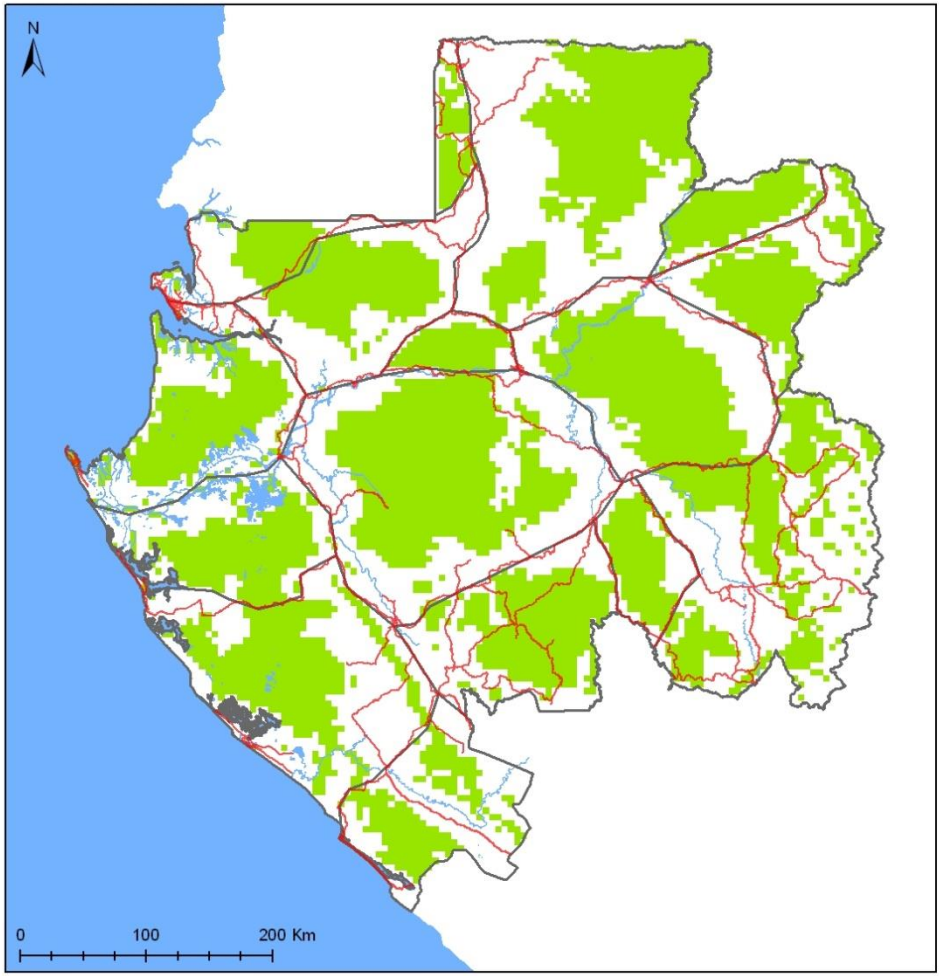
70%



Potential conservation area for a target of 70% of the current elephant population

- Potential conservation area
- Bloc
- Road
- Water
- Gabon

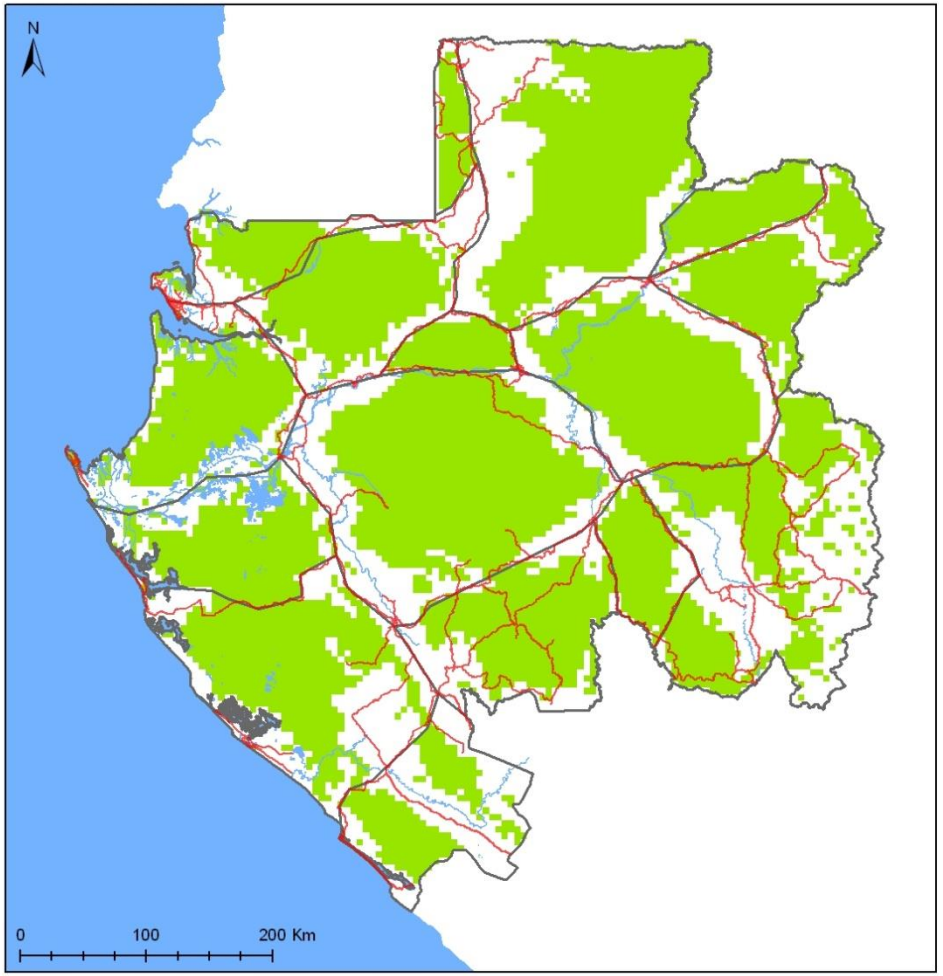
80%



Potential conservation area for a target of 80% of the current elephant population

- Potential conservation area
- Bloc
- Road
- Water
- Gabon

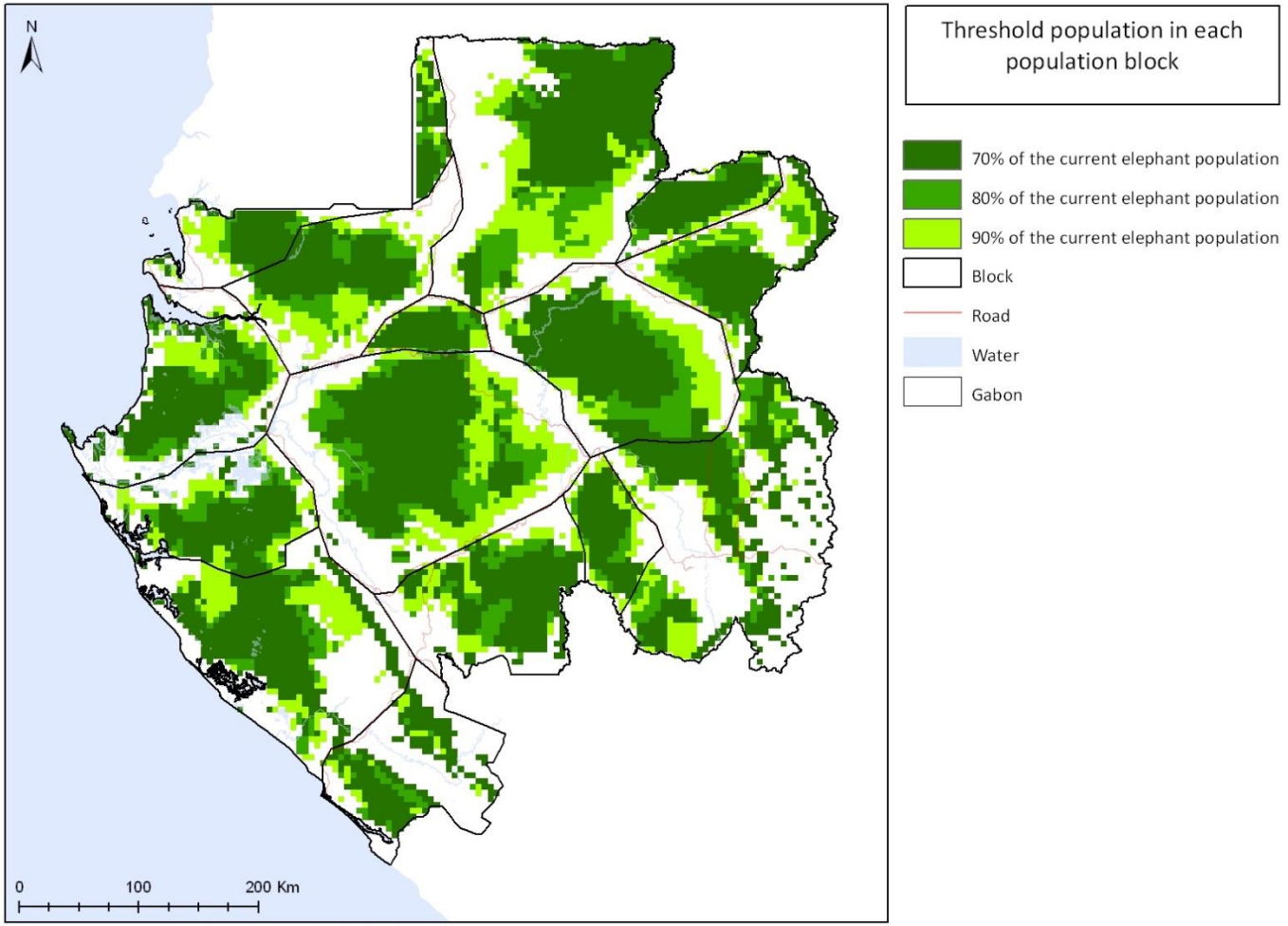
90%



Potential conservation area for a target of 90% of the current elephant population

- Potential conservation area
- Bloc
- Road
- Water
- Gabon

Threshold by block



A priori targets

- We know for example that certain blocks have larger populations and are more intact….
- We can favour these populations by setting higher targets for these blocks

- *Possible d' etablir des seuils particulières par block selon l'importance globale de la population…*