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31st January 2018

Modelling the climate and environmental suitability of Lymphatic filariasis (LF) in Nigeria.

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Presented by Obi Eneanya at the Quality research for effective policies meeting,
London Centre for Neglected Tropical Disease Research (LCNTDR),
London. United Kingdom

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Introduction

- LF is a mosquito-borne Neglected Tropical Disease (NTD).
- Disease manifests as lymphedema, hydrocele and acute fevers.
- Prevention and treatment are by the use of bed nets and by treating entire endemic communities with Ivermectin + Albendazole + DEC.

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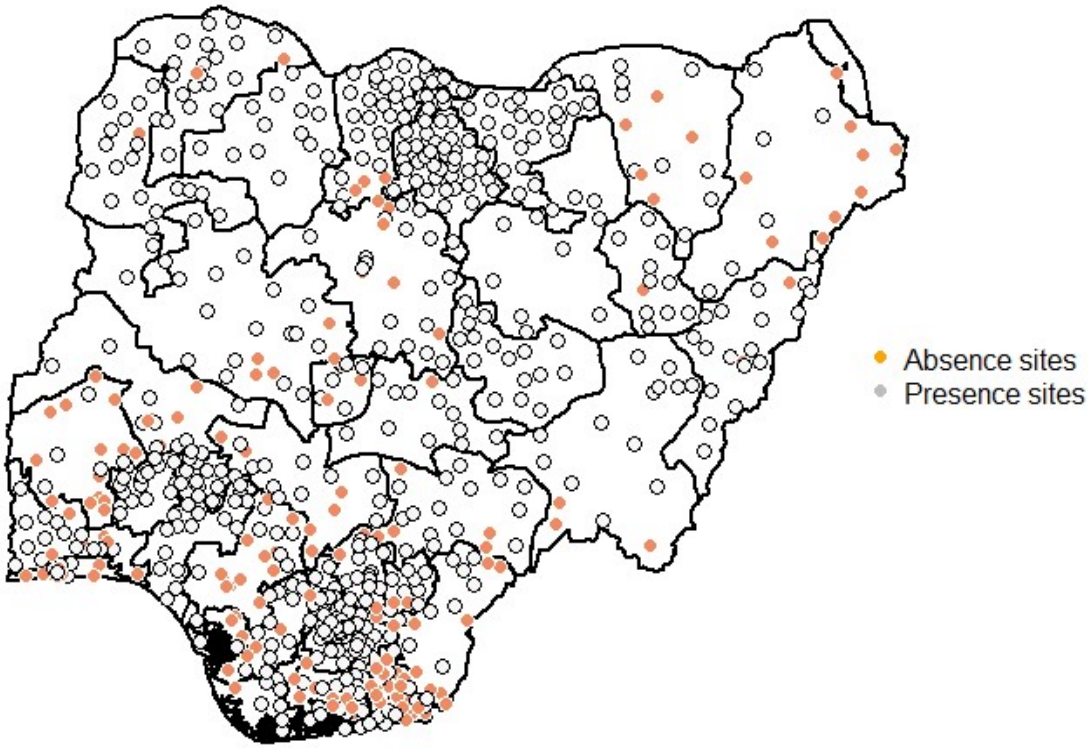
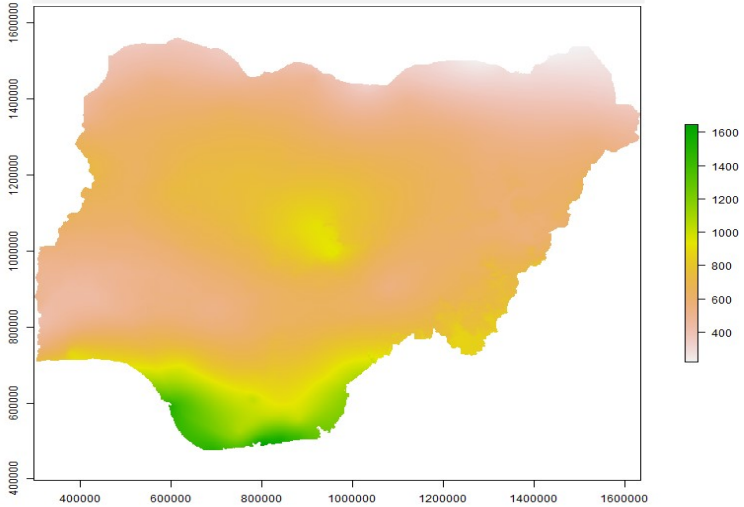
Modelling the ecological niche of LF

- The data –
  - 717 presence-absence data points.
- The model –
  - An ensemble of <u>Random forest</u> and <u>Boosted regression tree models</u>

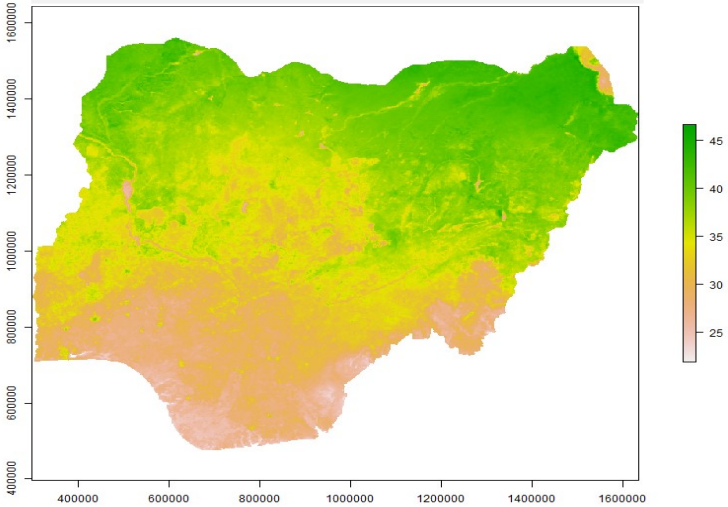


Climate and environmental covariates

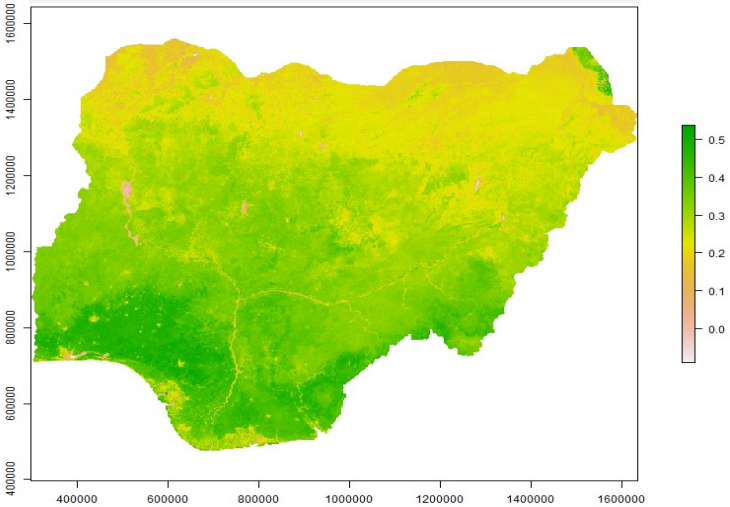
Precipitation



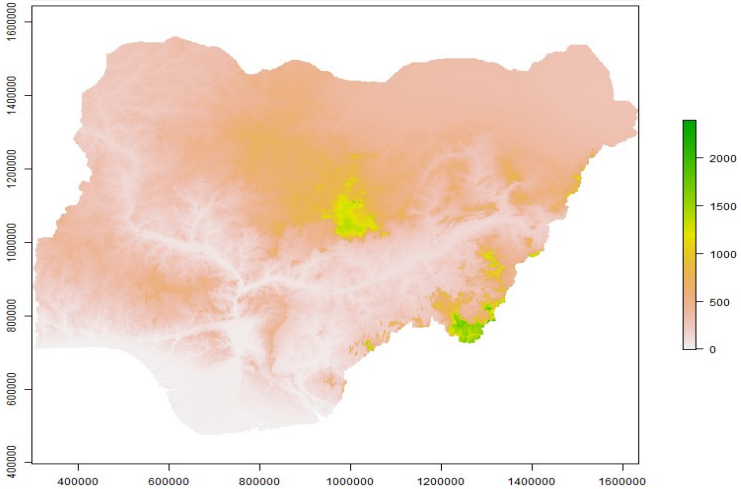
Temperature



Enhanced vegetation index



Elevation/altitude



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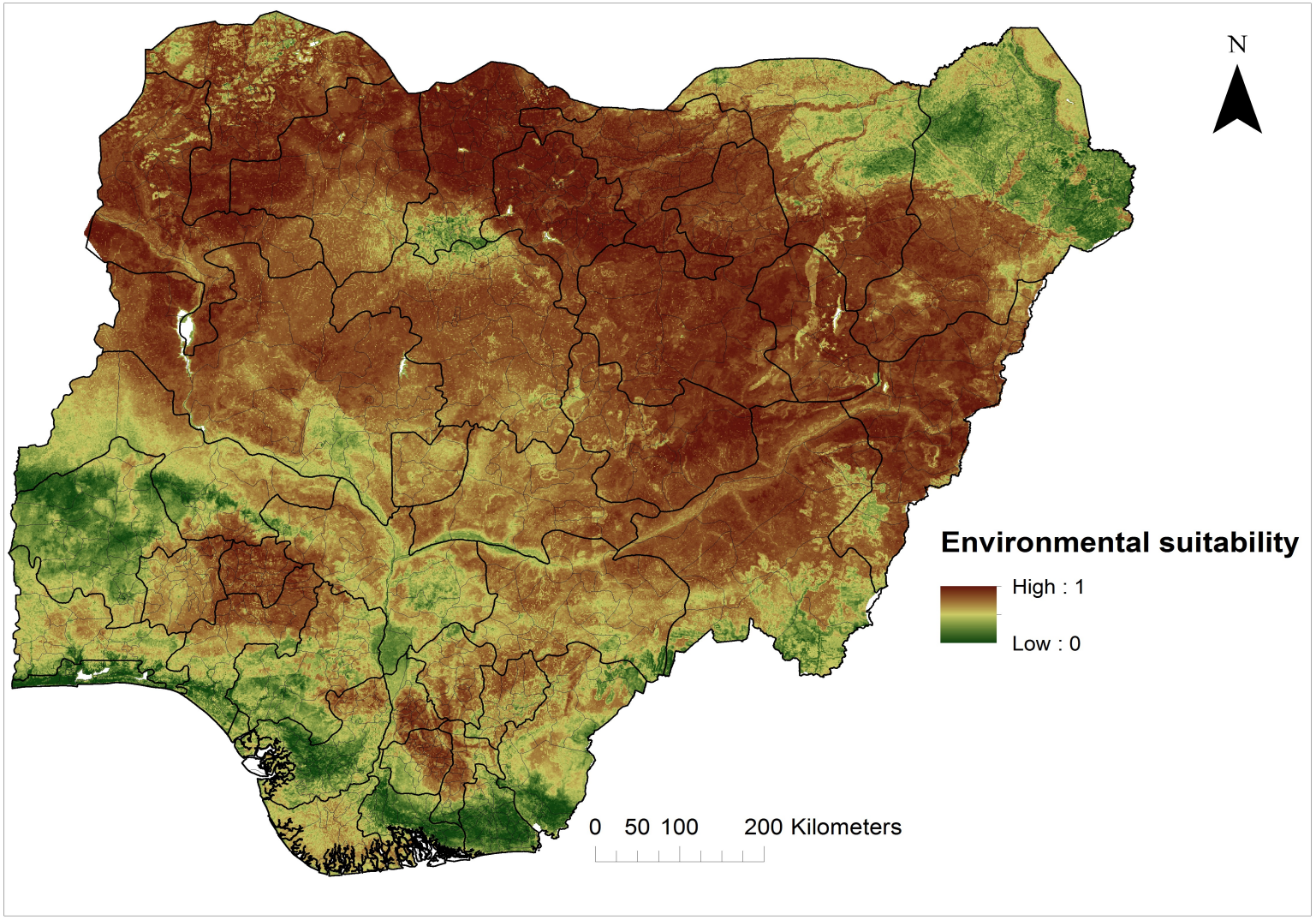
Environmental suitability of LF – spatial resolution 1km x 1km



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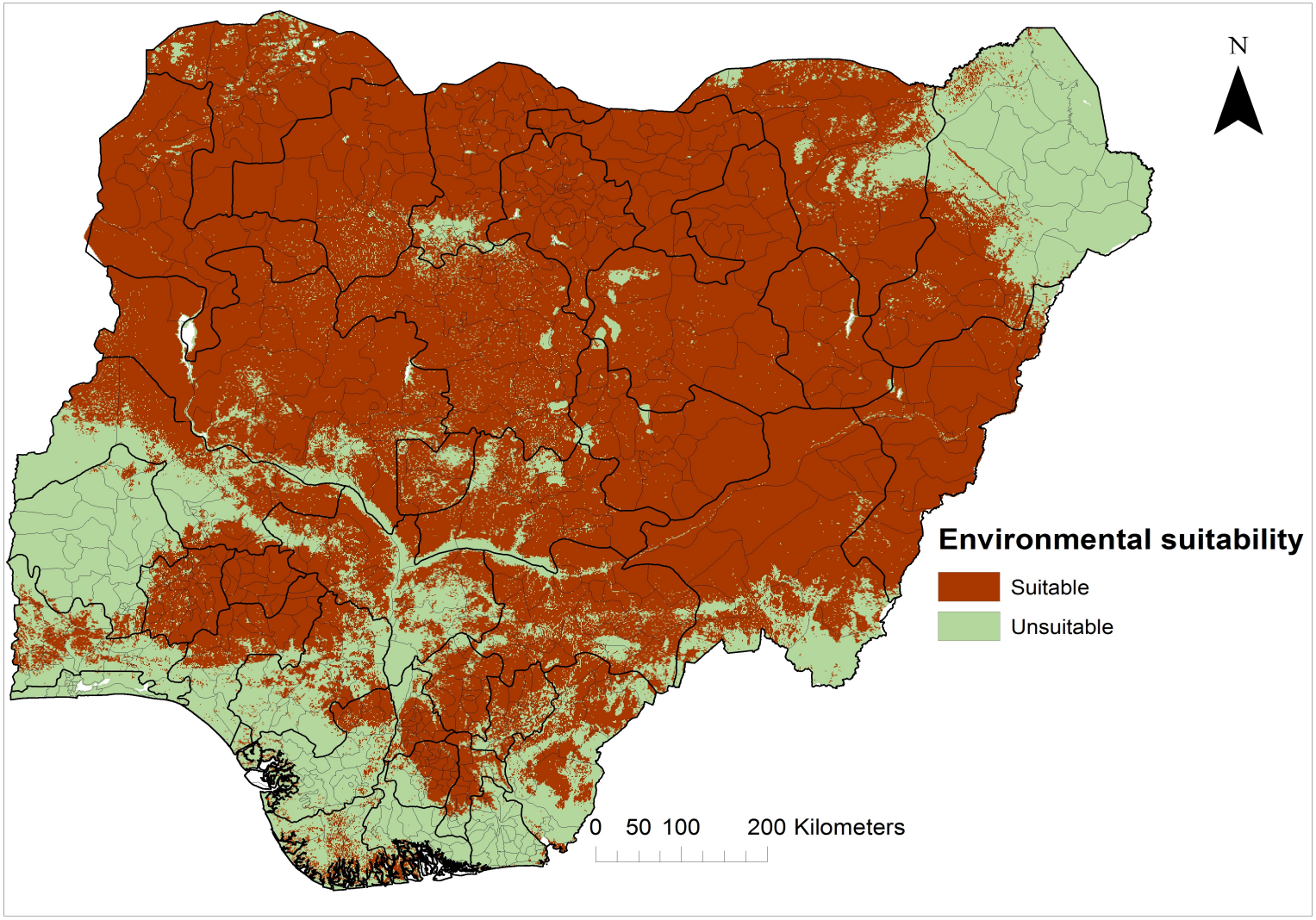
Environmental suitability of LF – on a binary scale

Population at-risk

91.7 (95% CI: 88.4-92.9) million people



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Future directions…

- Bayesian modelling of the spatial prevalence of LF in Nigeria.
- Evaluating the impact of bed net on the spatial distribution on LF in Nigeria.
- Estimating the population infected with LF Nigeria.

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Thank you ☺

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