

Flooding of the Okavango Delta influences Connectivity for Dispersing African Wild Dogs

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Abstract

Many ecosystems experience drastic changes in environmental conditions due to seasonality. While such seasonal changes may drastically alter connectivity for endangered species, most studies represent the environment by a static set of spatial layers, thus ignoring seasonal changes. Here, we address this shortcoming and employ individual-based simulations to investigate how seasonal flooding of the Okavango delta influences connectivity for dispersing African wild dogs (*Lycaon pictus*). Our results show that the Okavango delta poses a substantial dispersal barrier when the flood is at maximum extent, yet that viable dispersal corridors exist when the flood is at a minimum level. Despite a better understanding of the conservation needs for African wild dogs, our study also provides evidence that incorporating seasonality in studies of connectivity is imperative to more accurately predict dispersal ability of endangered species.

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1 Introduction

Hello, I'm an introduction.

2 Methods

2.1 Study Area

As depicted in Figure 1, the study area encompassed ...

2.2 Flood

In order to generate spatial layers that depict the flood extent at different points in time, we ... Figure 2.

3 Authors' Contributions

D.D.H., D.M.B., A.O. and G.C. conceived the study and designed methodology; D.M.B., G.C., and J.W.M. collected the data; D.D.H. and D.M.B. analysed the data; G.C. and A.O. assisted with modeling; D.D.H., D.M.B., and G.C. wrote the first draft of the manuscript and all authors contributed to the drafts at several stages and gave final approval for publication.

4 Data Availability

GPS movement data of dispersing wild dogs is available on dryad (?). Access to R-scripts that exemplify the application of the proposed approach using simulated data are provided through Github (<https://github.com/DavidDHofmann/DispersalSimulation>). In addition, all codes required to reproduce the African wild dog case study will be made available through an online repository at the time of publication.

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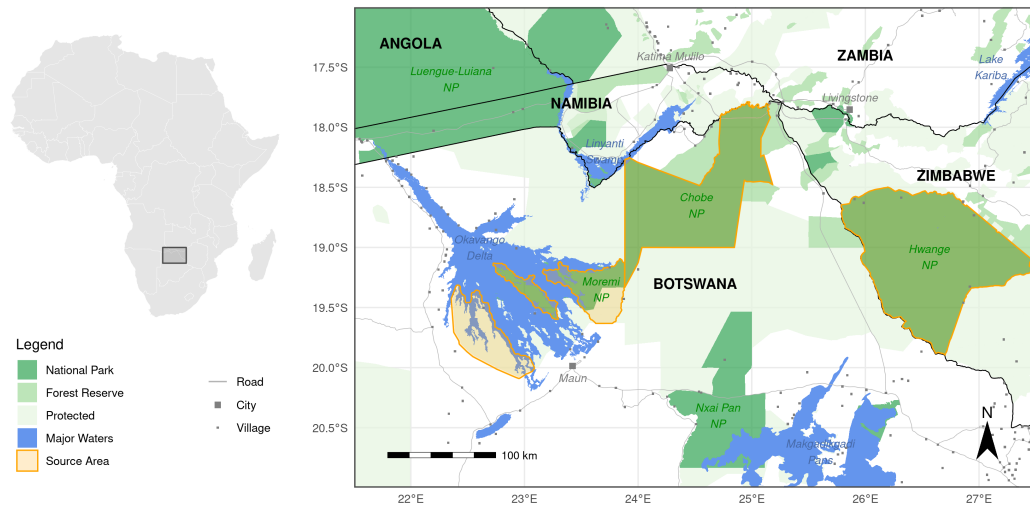


Figure 1: Study area across which we simulated dispersal events. Virtual dispersers were released at random locations within the orange source areas.

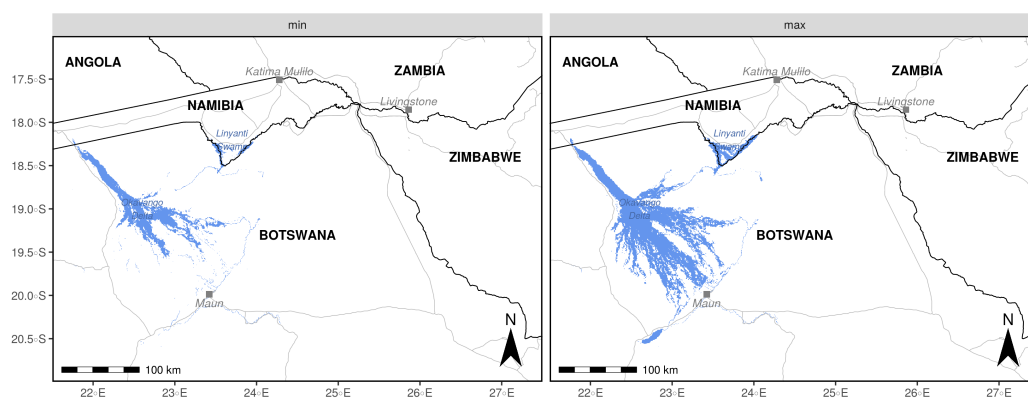


Figure 2