Global distribution of forest gaps in mangroves: A review

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Introduction

Forest gaps have been observed in tropical and sub-tropical mangrove ecosystems across the globe, including, the Dominican Republic, Florida, EL Savador, French Guiana, Panama, Venezuela, South Africa, Malaysia, Vietnam, Australia and, Papua New Guinea (Duke 2001;Clarke 2004; Amir 2012). The cause of the formation of these gaps has not been fully understood, although some cases have been linked to the death of old trees (senescence) or to various episodic events (wind throws, insect attacks, diseases, and lightning). Forest gaps provide recruitment opportunities for seedlings to replace dead trees, thus leading to local natural regeneration of the mangrove stand. The study examines the abundance and global distribution of the forest gaps world-wide within grid cells of continuous mangrove forests with more than 5km^2 .

Results

Fig.1

Worldwide mangrove biomass (tonnes per hectare) and distribution of forest gaps

Source: Hutchison et al.2014.Conservation Letters. doi: http://dx.doi.org/10.1111/conl.12060

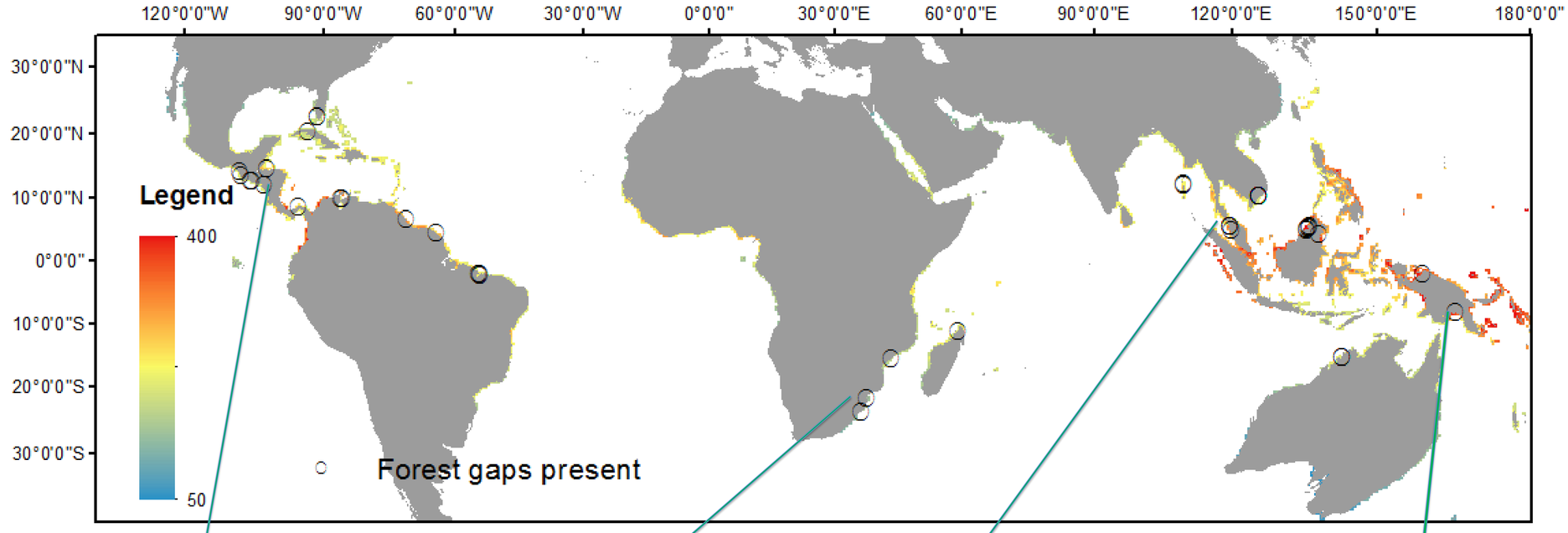


Fig. 2

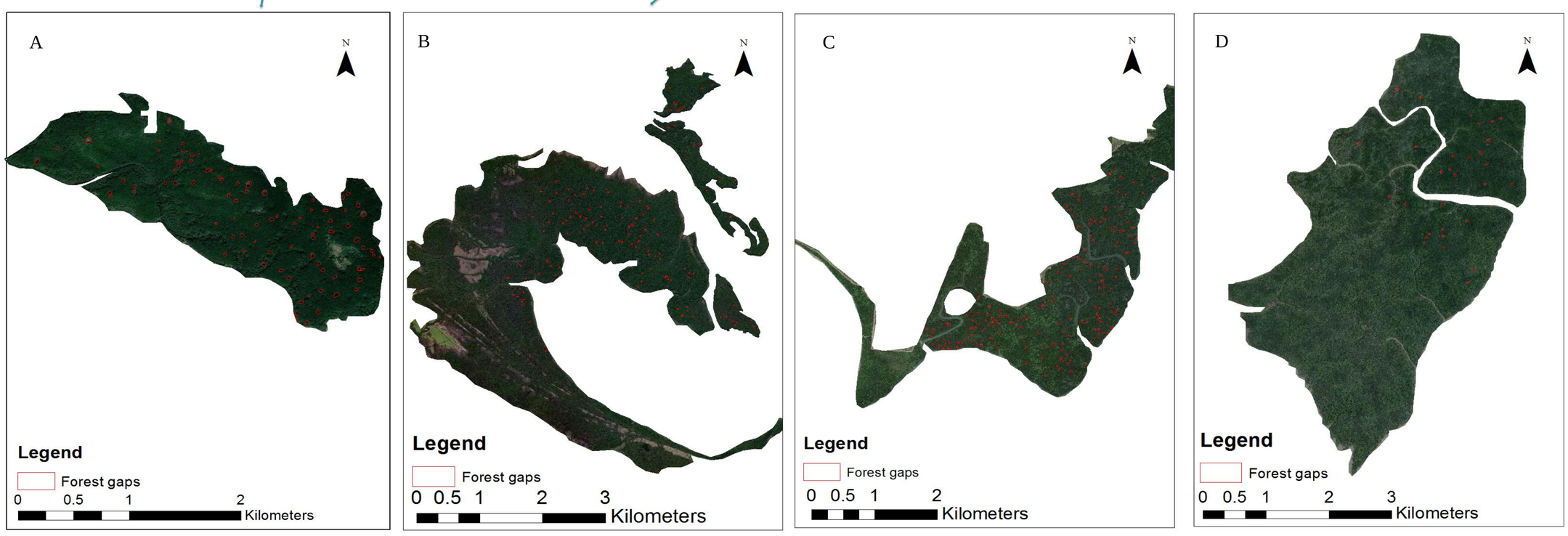
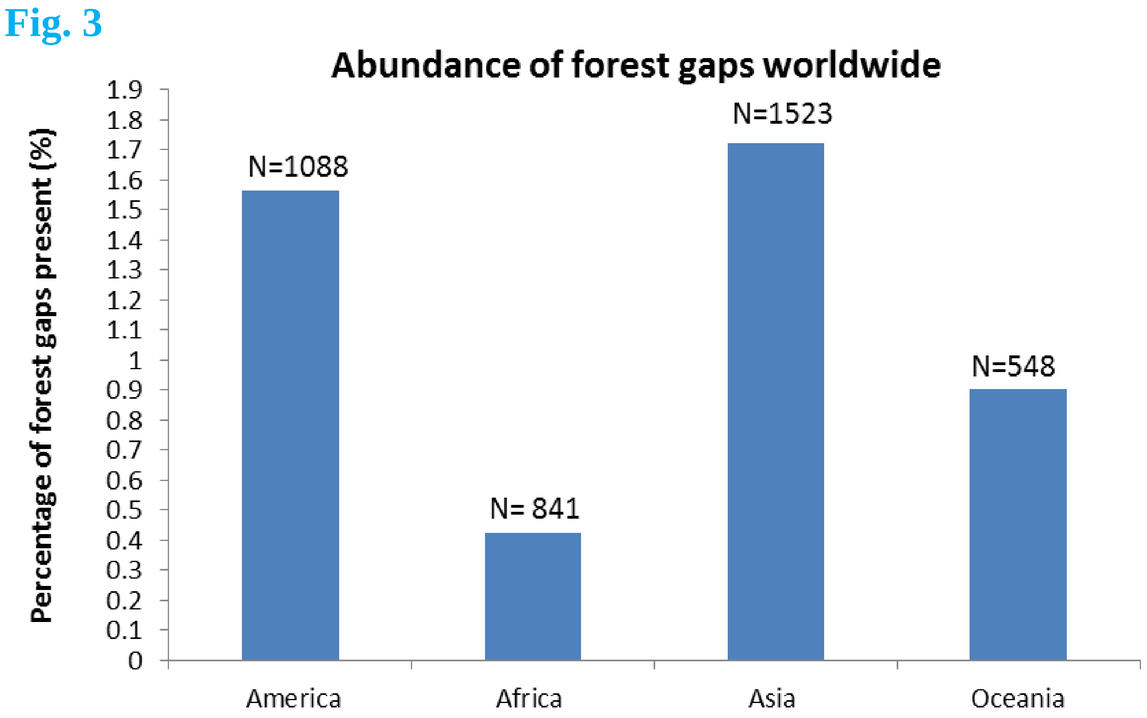


Fig. 3



Mangrove patches >5km^2 size worldwide contain on averagely 1% of forest gaps (**Fig.1**).

Forest gaps are relatively more abundant on the Asian continent (1.7%) than the American (1.5%), Oceanian (0.9%) and African (0.4%) continents (**Fig.3**).

The abundance of forest gaps correlates with the reported higher biomass and species richness on the Asian continent (**Fig.1**).

Perspectives

To unravel the drivers of forest gaps globally, forest gaps distribution will be modelled using physico-chemical parameters (salinity, and pH) and climatic (precipitation, lightning frequency and temperature) predictors, within a predictive habitat distribution model framework.

References

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