

Shout-out to loggerheads in Brazil: Nesting trends from 1991 – 2019

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Introduction

Population size is a critical metric for endangered species population assessments.

For migratory and complex life cycle species, abundance can be particularly challenging to estimate.

The annual number of nests is one of the main parameters used for population assessment in sea turtles.

All loggerhead nest sites for the Southwest Atlantic RMU are in Brazil and have been monitored since the 1980s.



Objective

To evaluate nest abundance trends for the main loggerhead rookeries in Brazil.

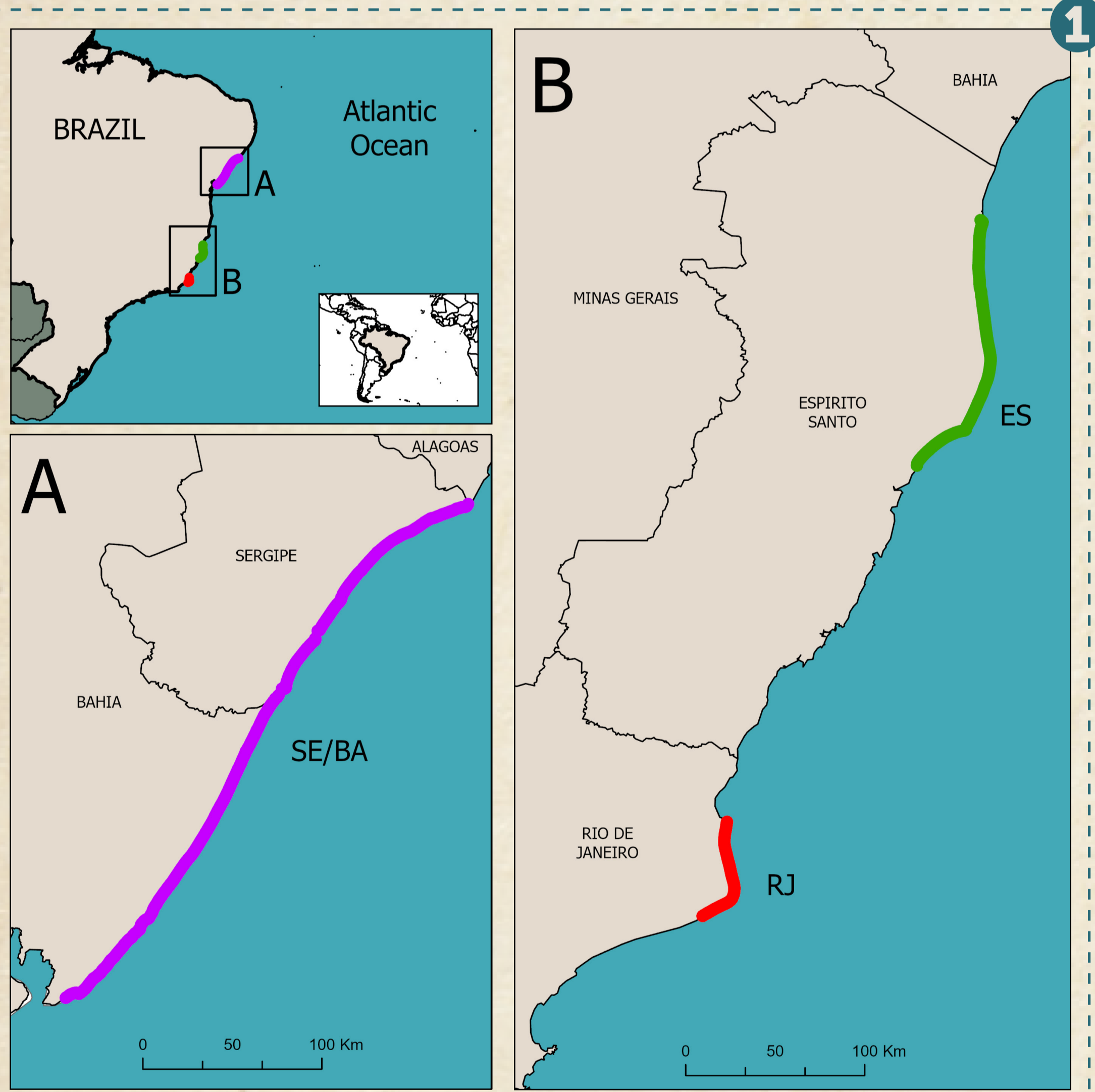
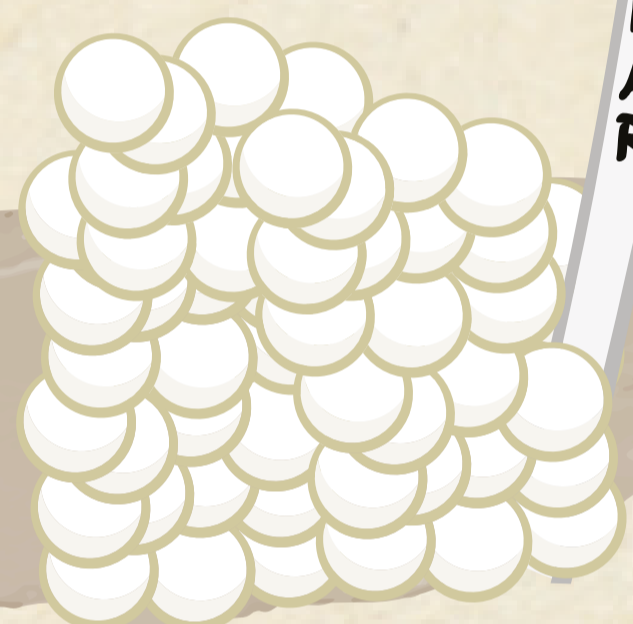


Figure 1: Map indicating the loggerhead rookeries considered in this study: SE/BA (blue), ES (green), and RJ (red).

Methods

Rookeries were grouped based on geographic distribution and genetic structuring (Fig. 1): Sergipe and northern Bahia (SE/BA), northern Espírito Santo (ES), and northern Rio de Janeiro (RJ).

Nest abundance estimated using daily nest count data from each nesting season in the period 1991–2019 for SE/BA and ES, and in 2001–2019 for RJ.

We evaluated trends in nest abundance for each rookery and for all rookeries combined using generalized additive mixed models with a negative binomial distribution (package *mgcv* in R¹²).

Results and Discussion

We observed an overall increasing trend in the number of nests for all evaluated areas over time (Fig. 2).

SE/BA: near 4-fold increase (1991 - 2019)

ES: near 6-fold increase (1991 - 2019)

RJ: near 3-fold increase (2001 - 2019)

Areas combined – near 2.5-fold increase (2001 - 2019)

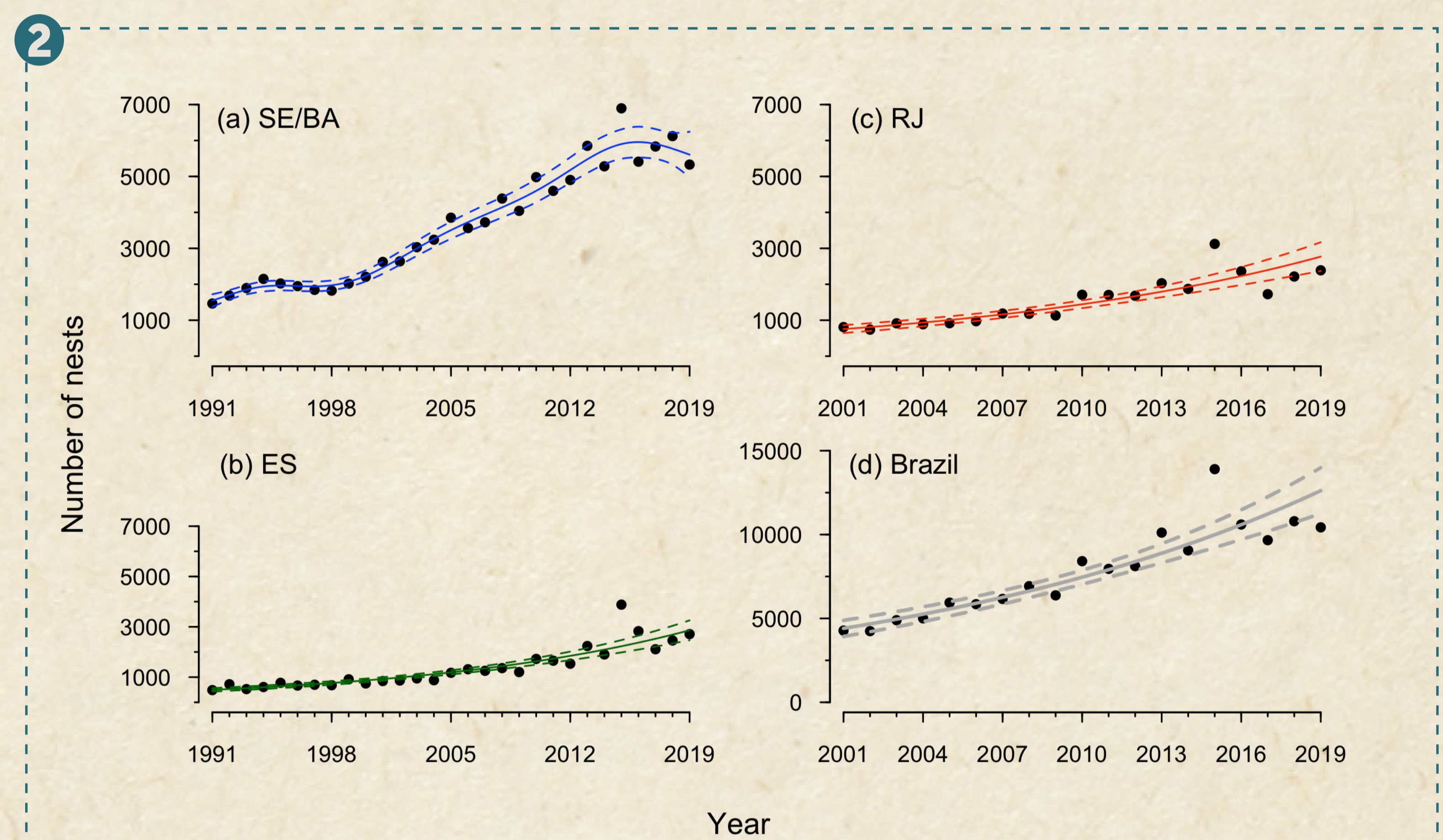


Figure 2: Estimated annual number of loggerhead nests in each rookery (a - c) and all areas combined (d) in Brazil. Solid lines represent model estimates and dashed lines represent 95% confidence intervals

No change in clutch frequency and remigration intervals³. The increase reported here could be linked to a greater abundance of nesting females.

Support to current Southwest Atlantic subpopulation conservation status as Least Concern⁴.

Implications for management of loggerhead SW Atlantic RMU.

Fundação Projeto Tamar uses an adaptive threat management approach with environmental education and social inclusion as the backbone for local community engagement toward conservation⁵.

Need of implementation of adaptive mitigation measures to ensure persistent population growth.

Eradication of meat and egg poaching are likely the main reasons for recovery. Reduction of impacts from fisheries bycatch, coastal development, and nest predation by animals are still dependent on conservation efforts and require continuous monitoring.

ACKNOWLEDGMENTS

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