

USING KEY INFORMANT SURVEYS TO RELIABLY AND RAPIDLY ESTIMATE THE DISTRIBUTIONS OF MULTIPLE INSULAR INVASIVE SPECIES

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INTRODUCTION

- Developing countries, which harbour a significant proportion of biodiversity, lack in research and management of biological invasions
- To effectively manage multiple biological invasions, these countries must generate information on their distributions - **rapidly, reliably**, and at a **large scale**
- Public surveys can be used to generate such baselines, though the issue of reliability must be addressed
- We assessed the distributions of four major synanthropic invasive species on the Andaman archipelago, Bay of Bengal – the giant African snail *Achatina fulica*, the Indian bullfrog *Hoplobatrachus tigerinus*, the house sparrow *Passer domesticus*, and the common myna *Acridotheris tristis*

METHODS

- Detection/non-detection data for the four species through semi-structured key informant interviews in 91 sites on inhabited islands
- Key informants comprising of farmers, plantation workers, and aqua-culturists; survey from January to March and September to December 2015
- Simultaneous field observations through systematic visual encounter surveys and opportunistic records.

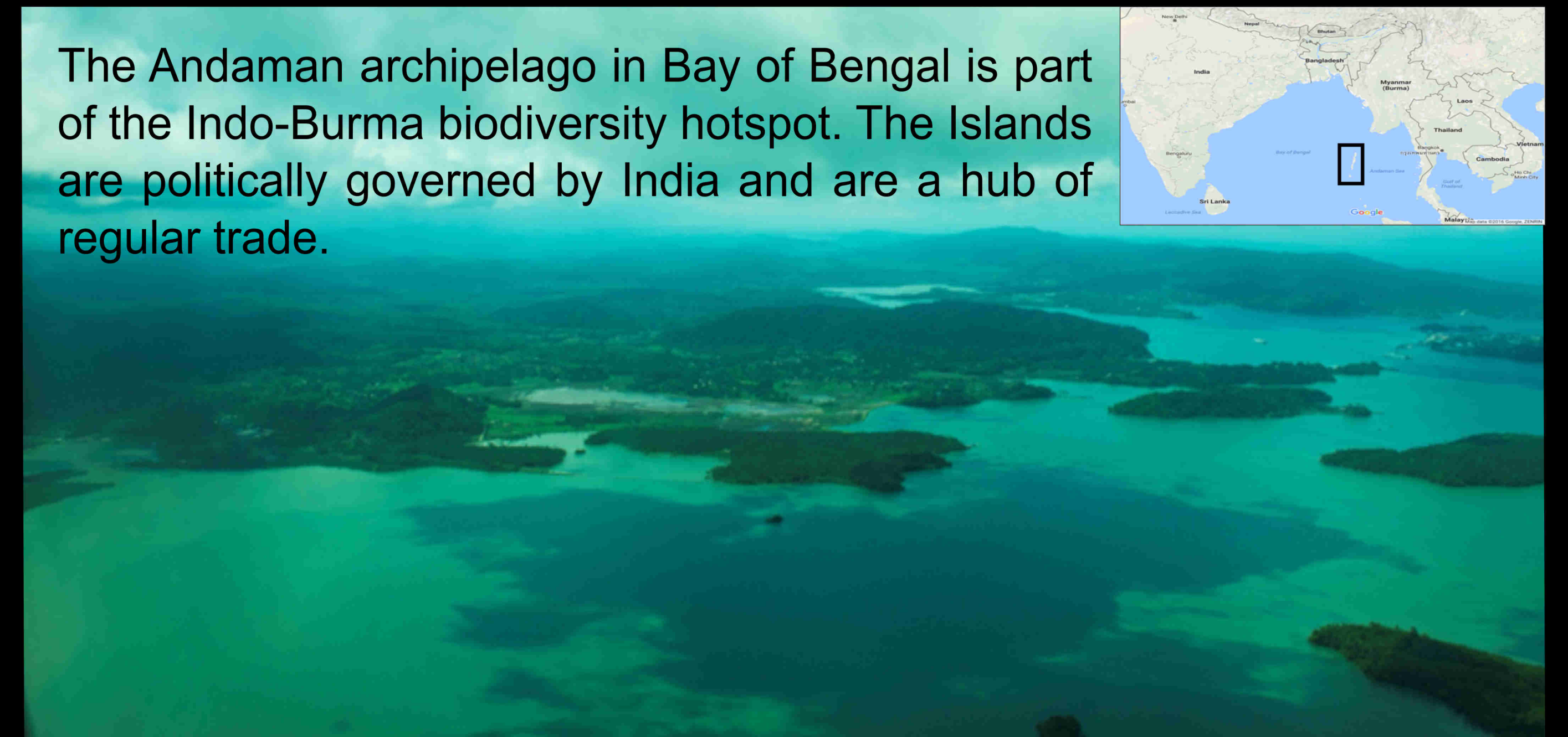
Species	Site	Key informant observations		Field observations	
		Interviews/site (SD)	detection/nondetection	Naive occupancy	detection/nondetection
Common Myna	88	9.43 (1.32)	519/311	0.84	40/25
House Sparrow	86	9.43 (1.12)	226/585	0.64	7/31
Indian Bullfrog	91	9.56 (1.10)	528/342	0.70	57/27
Giant African Snail	86	9.6 (1.02)	753/73	0.98	17/11

- Multi-method false positive models (Miller et al. 2011) and single-season constant detection models (McKenzie et al. 2002), with three site covariates signifying susceptibility to invasion – distance to nearest port, distance to nearest major town, and distance to nearest major road



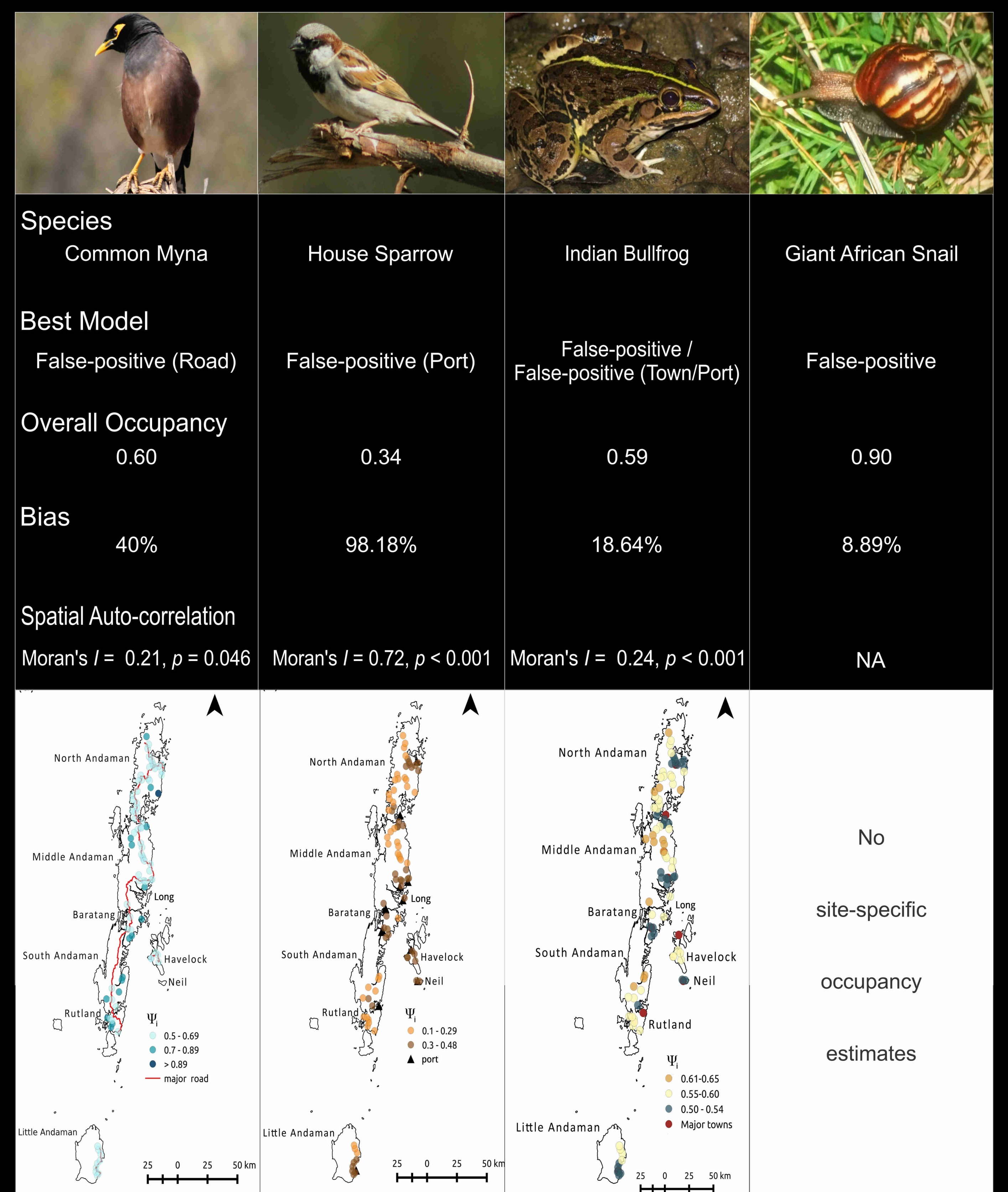
DISCUSSION

- We demonstrate that the distribution of multiple invasive species can be reliably estimated from public surveys using false positive models
- Public surveys may also yield critical information on timeline of invasions and major dispersal pathways
- The method seems appropriate to simultaneously assess the status of disparate taxonomic groups and is scalable to other invasive species that have interactions (positive or negative) with the public
- Given the urgency in generating baselines for invasive species in developing countries, this cost-effective and rapid approach would be useful to generate reliable data over large spatial scales



The Andaman archipelago in Bay of Bengal is part of the Indo-Burma biodiversity hotspot. The Islands are politically governed by India and are a hub of regular trade.

RESULTS



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