Conservation priority setting for the Asia Pacific: a spatially explicit analyses

Sarira, T.[a], Neugarten, R.[b], Cramer, A.[b], Raja Segaran, R.[a] & Koh, LP.[a]

[a]School of Biological Sciences, The University of Adelaide, Adelaide SA 5005, Australia
[b]Conservation International, Arlington, Virginia, United States of America

Corresponding Author: tasya.sarira@adelaide.edu.au

Introduction

- Livelihoods in the Asia Pacific mostly dependent on natural resources
- Terrestrial, freshwater and marine ecosystems impacted as a result of extensive transformations
- Ecological and economical lifeblood of the region threatened

This work aims to develop a regional spatially explicit priority model to inform of natural areas and biodiversity vital to support human livelihoods and well-being

Problem

- Ad-hoc identification of priority areas
- Activities subject to funding opportunities

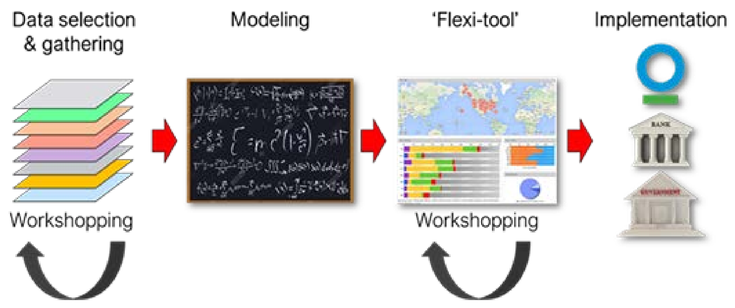
Not systematic and may miss biologically significant areas

Outcomes

- Systematic identification of conservation priority areas
- Regional database of geospatial information
- Assist in resource optimisation
- Methods transferrable to other regions

Next Steps

- 'Flexi-tool': user-defined tool to model for alternative scenarios and assess opportunity costs

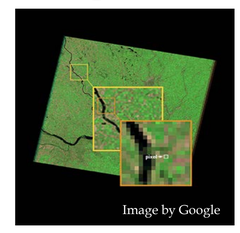


Methodology

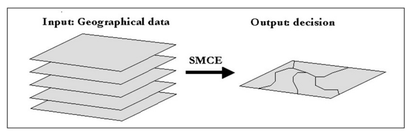
1. The role of nature to sustain livelihoods

2. Global Data Collection

3. Pre-processing



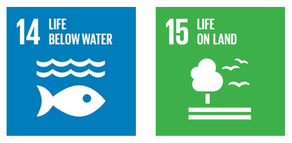
4. Multi-criteria Evaluation



Spatial Multi-criteria Evaluation (Malczewski, 1999)

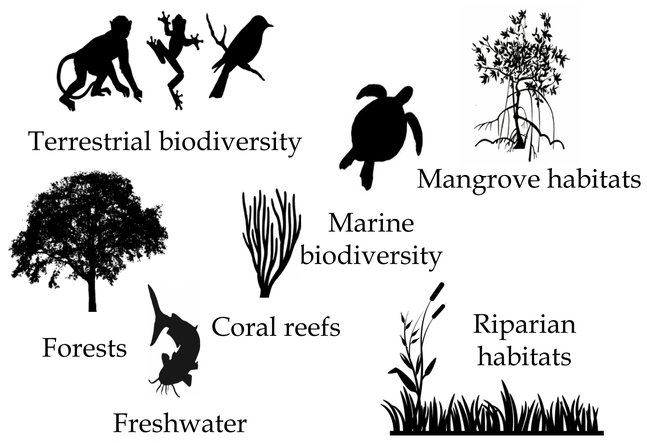
Spatial Analyses

Mapping SDGs, example



Overlayed with:

- Key Biodiversity Areas
- Threats
- Economic costs
- Governance



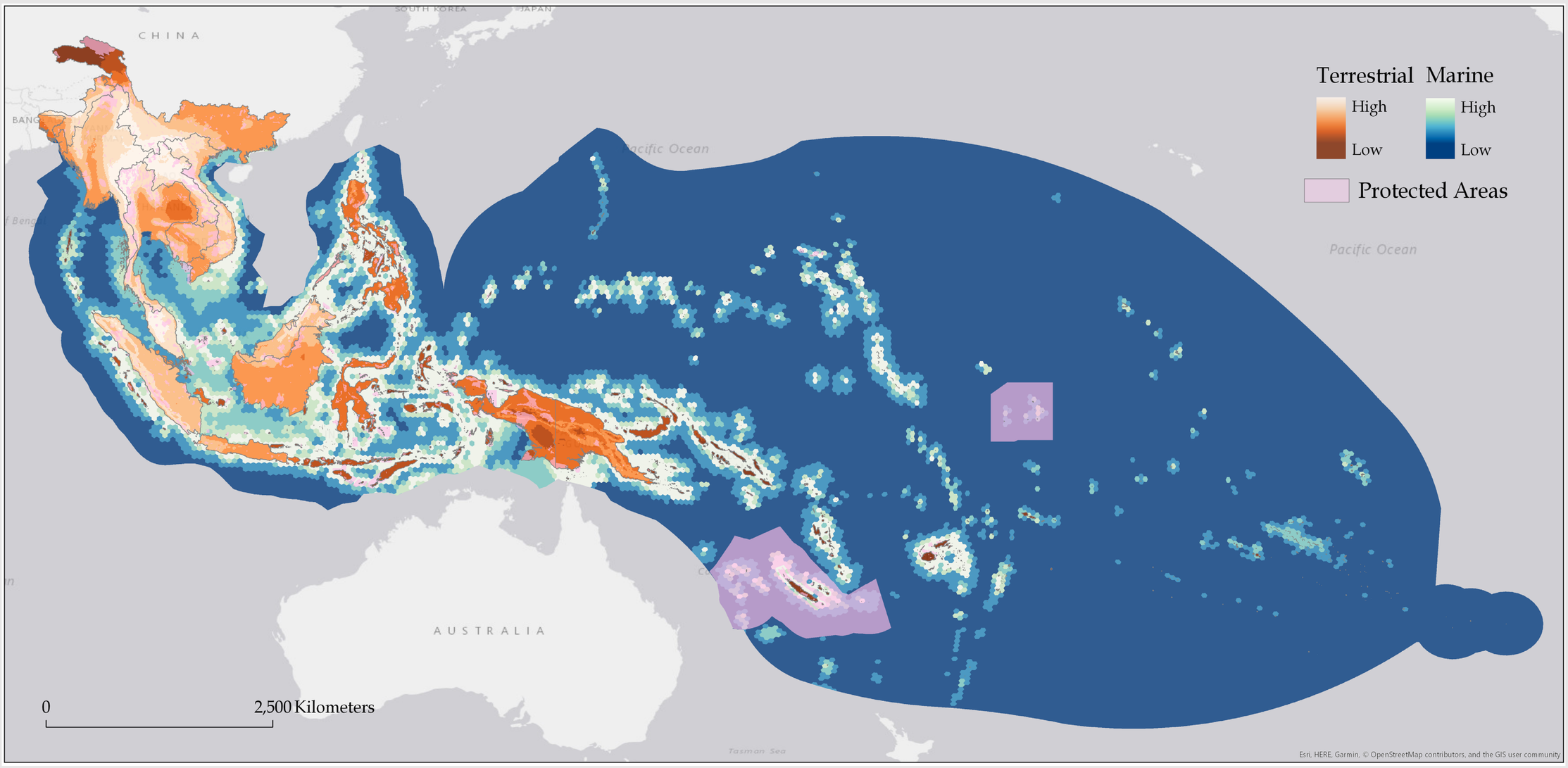
Study Area ≈ 65 million km²
Protected Areas ≈ 4.12 % of study area

- 12.1 % of terrestrial realm
- 3.3 % of marine realm

24.7 % of the terrestrial realm hosts the top 25 % of richest areas
2.76 % of marine realm hosts top 25 % of richest areas

Of the top 25 % richest areas,

- 34.9 % are within terrestrial protected areas
- 6.07 % are within marine protected areas



Preliminary species richness map in the terrestrial[1], freshwater[2] and marine realms[3], overlayed with protected areas

[1]Jenkins, C. N., Pimm, S. L., & Joppa, L. N. (2013). Global patterns of terrestrial vertebrate diversity and conservation *Proceedings of the National Academy of Sciences of the United States of America*, E2602-E2610. [2]Collen, B., Whitton, F., Dyer, E. E., Baillie, J. E., Cumberlidge, N., Darwall, W. R., . . . Bohm, M. (2014). Global patterns of freshwater species diversity, threat and endemism. *Glob Ecol Biogeogr, 23*(1), 40-51. [3]Selig, E. R., Turner, W. R., Troeng, S., Wallace, B. P., Halpern, B. S., Kaschner, K., . . . Mittermeier, R. A. (2014). Global priorities for marine biodiversity conservation. *PLoS One, 9*(1), e82898. UNEP-WCMC and IUCN (2016), The World Database on Protected Areas (WDPA) www.protectedplanet.net, Cambridge, UK: UNEP-WCMC