



Niche dynamics of non-native plants vary between regions

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1 QUESTION

Do non-native plants occupy the same climatic niche space when introduced to different regions?

2 METHODS

Occurrence data for 328 species downloaded from GBIF and BIEN

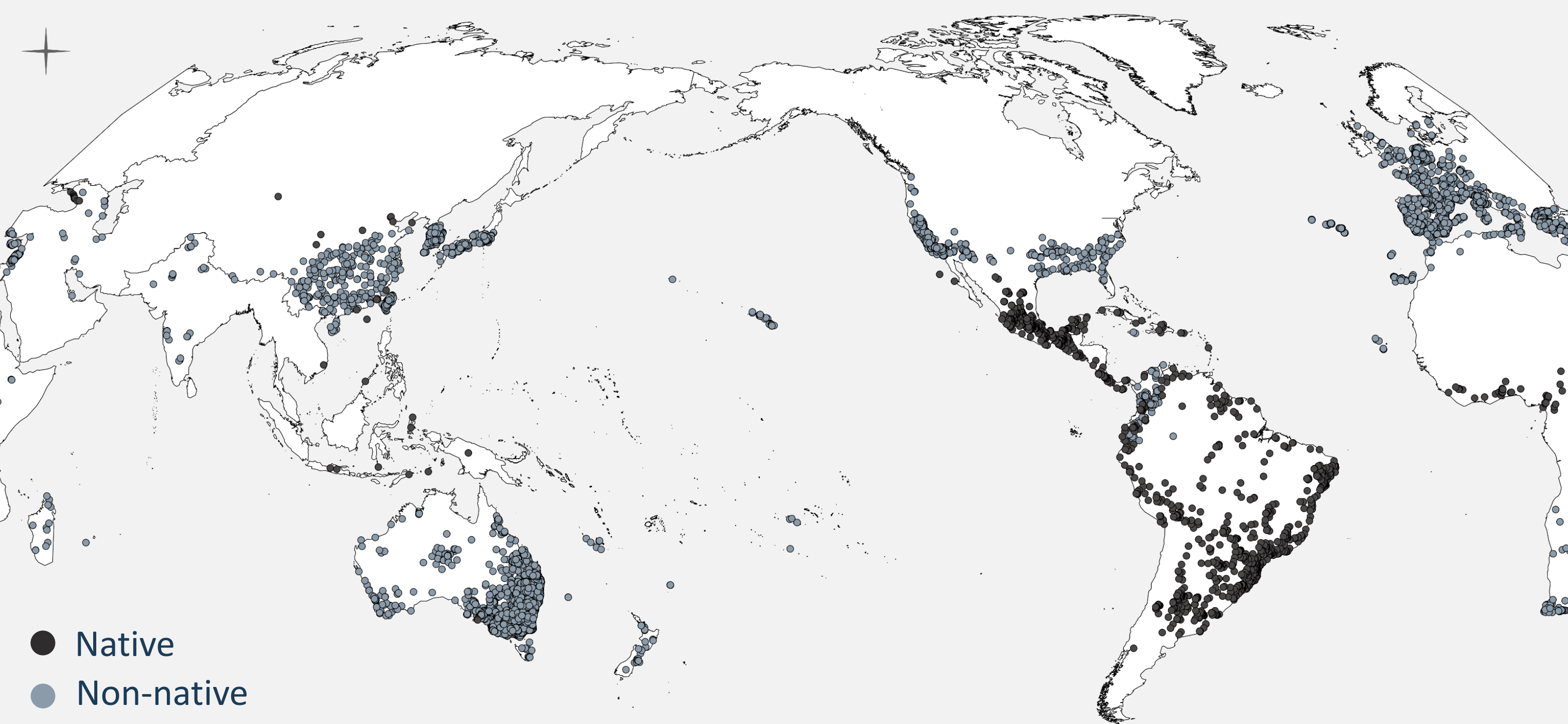


Figure 1: Native and non-native occurrence data across the study regions. Example species: *Erigeron bonariensis*.

Niche comparisons between native vs. non-native niches:

- Is niche conservatism or niche switching more common?
- Calculation of niche dynamics + comparison between regions.

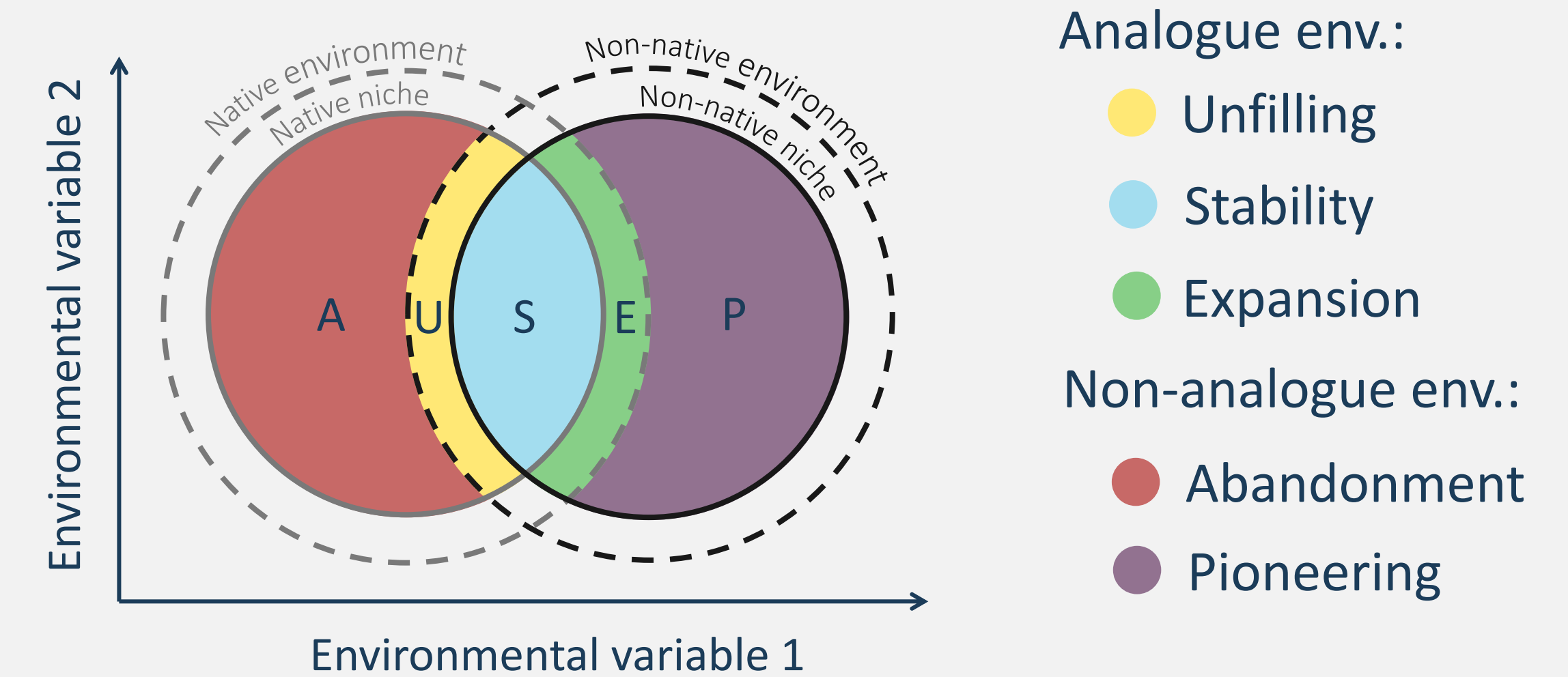


Figure 2: Concept figure for the niche dynamics between native and non-native range. Adapted from Fig. 1 of Atwater et al. (2018).

3 RESULTS

NO NICHE SWITCHING

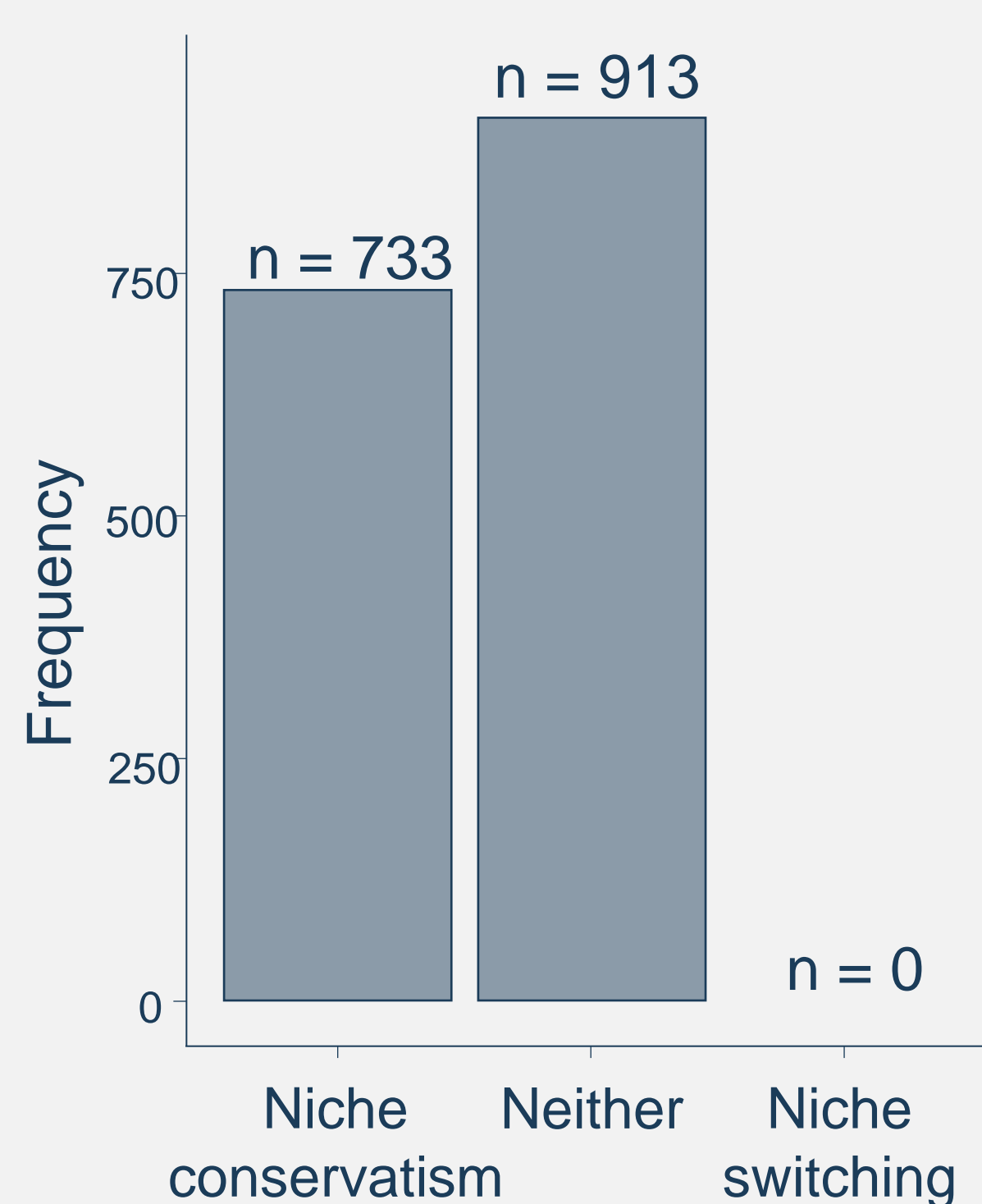


Figure 3: Frequency of significant niche conservatism, switching or neither, between native and non-native niches (n = 1646).

HIGH NICHE UNFILLING ON PACIFIC ISLANDS MIGHT INDICATE STRONGER DISPERSAL LIMITATIONS THAN IN OTHER REGIONS

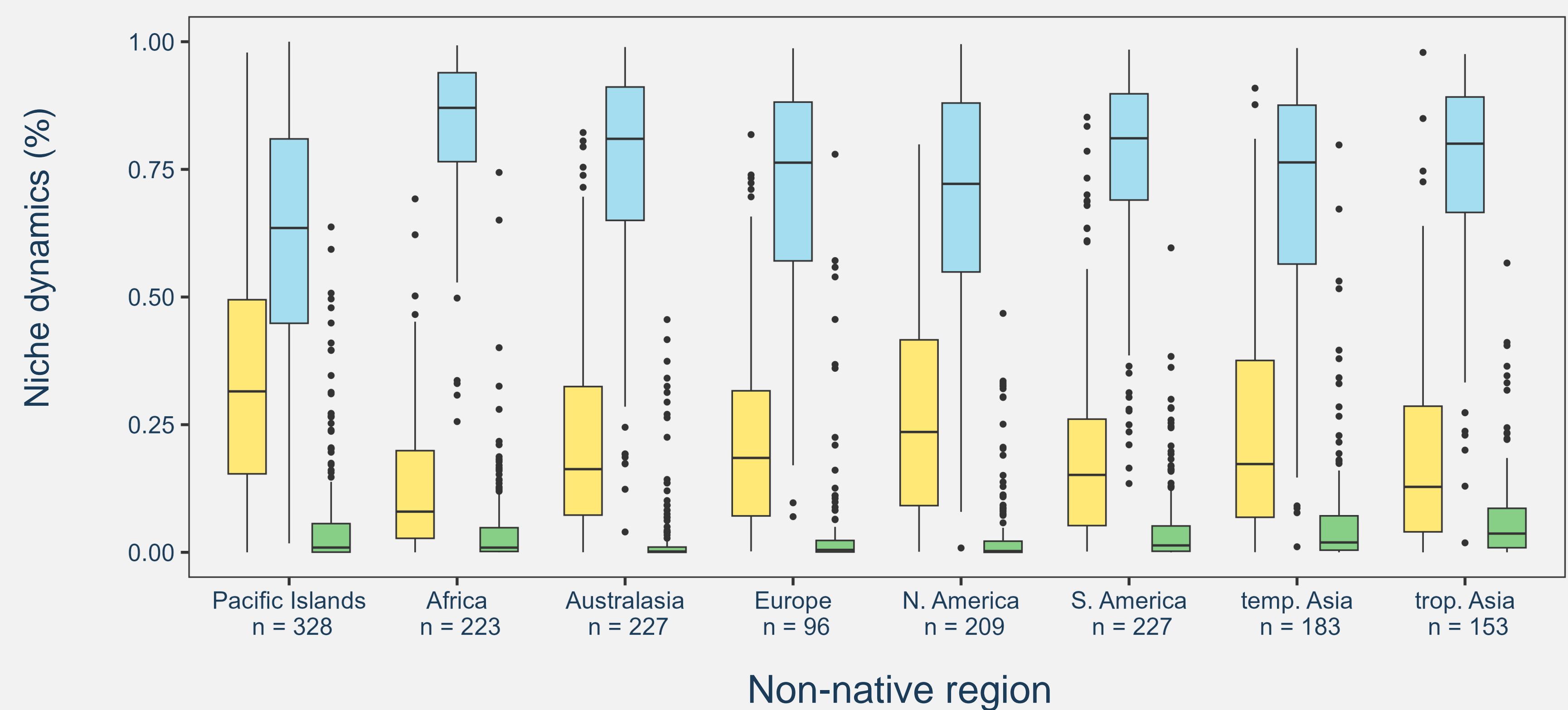


Figure 4: Niche dynamics between native and non-native regions. Colours correspond to Fig. 2.

4 IMPLICATIONS

Lack of niche switching and low expansion values
↓
Underestimation of environmentally suitable areas in risk assessments less likely
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High niche unfilling values for introductions to Pacific Islands
↓
Ongoing invasion process

5 OUTLOOK

Trait analysis

How do niche dynamics relate to:

- Functional traits?
- Geographic traits?

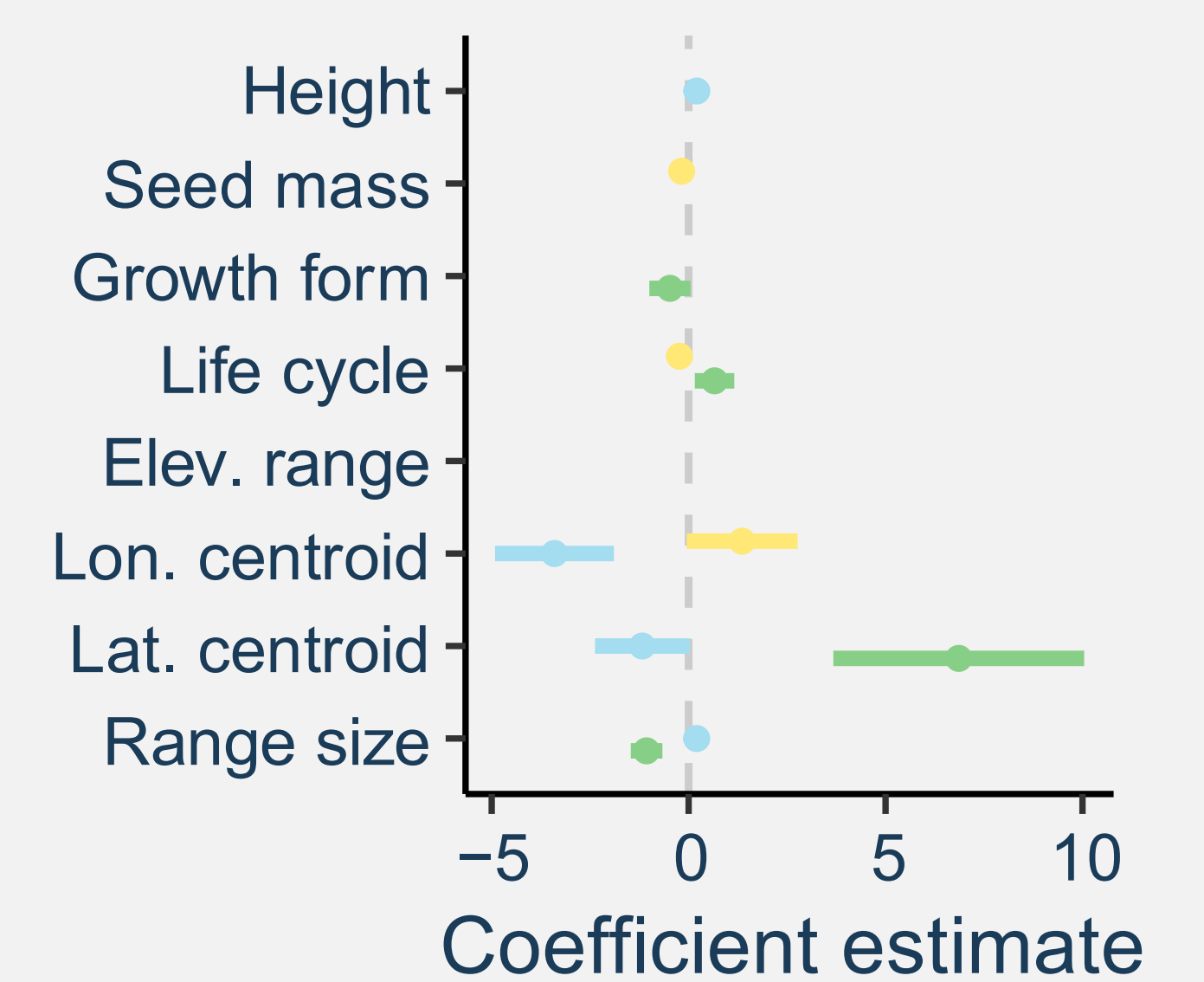


Figure 5: Trait effects on niche dynamic metrics. Error bars show the coefficient means and their 95% confidence intervals.



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References:

Atwater et al. (2018). Nature Ecol. & Evol., doi: 10.1038/s41559-017-0396-z