



# 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

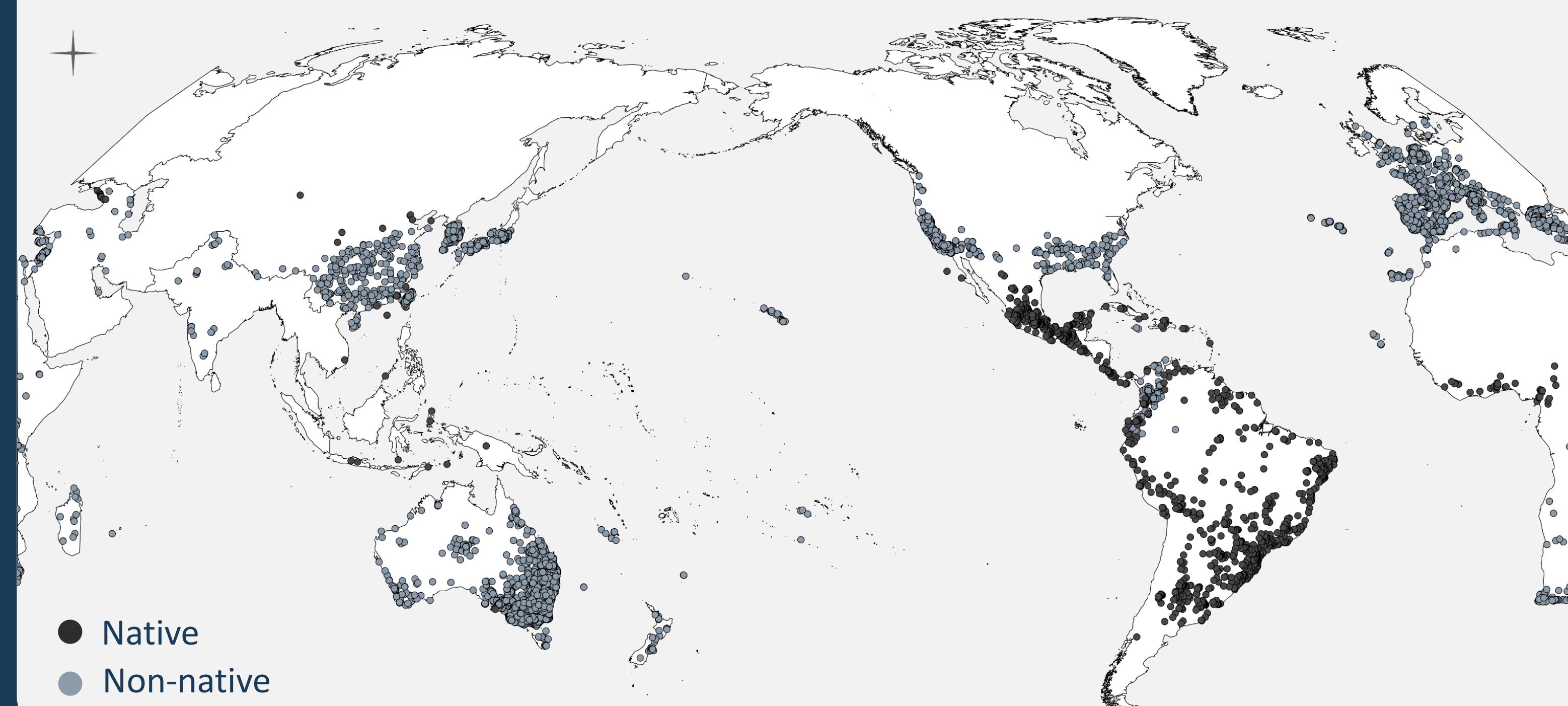


Figure 1: Native and non-native occurrence data across the study regions.  
Example species: *Erigeron bonariensis*.

### Niche comparisons between native vs. non-native niches:

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

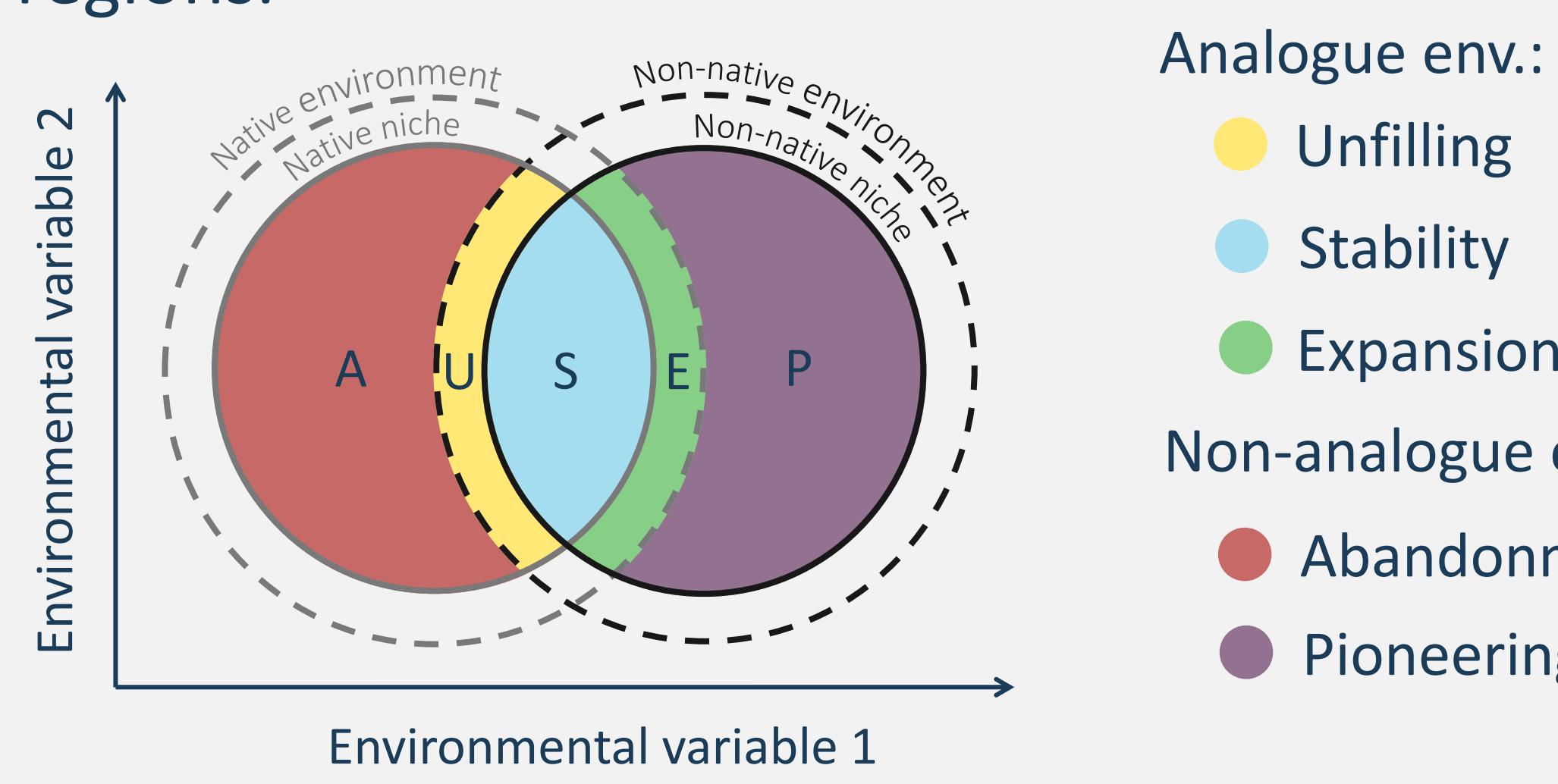


Figure 2: Concept figure for the niche dynamics between native and non-native range. Adapted from Fig. 1 of Atwater et al. (2018).

## 3 RESULTS

### NO NICHE SWITCHING

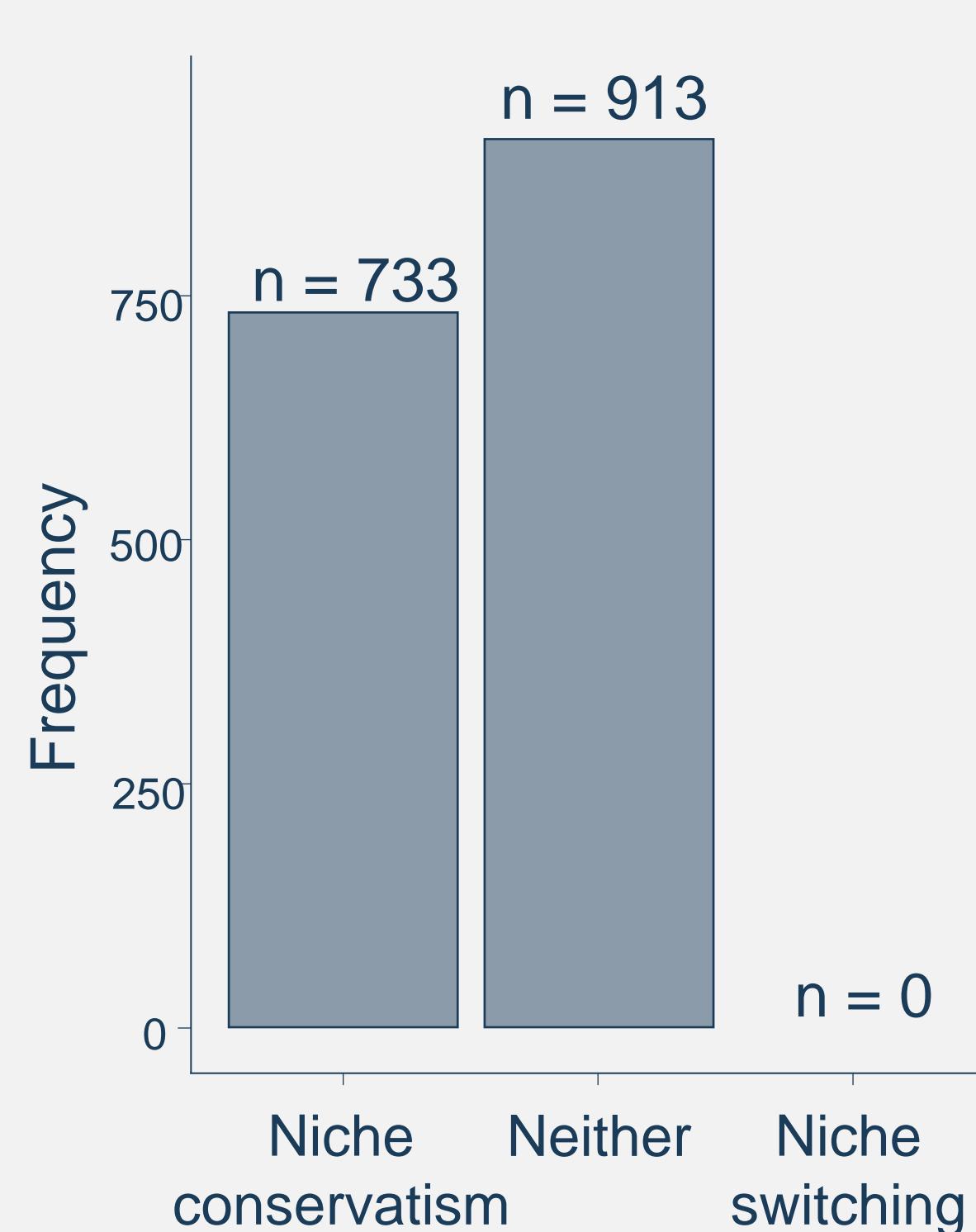


Figure 3: Frequency of significant niche conservatism, switching or neither, between native and non-native niches (n = 1646).

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

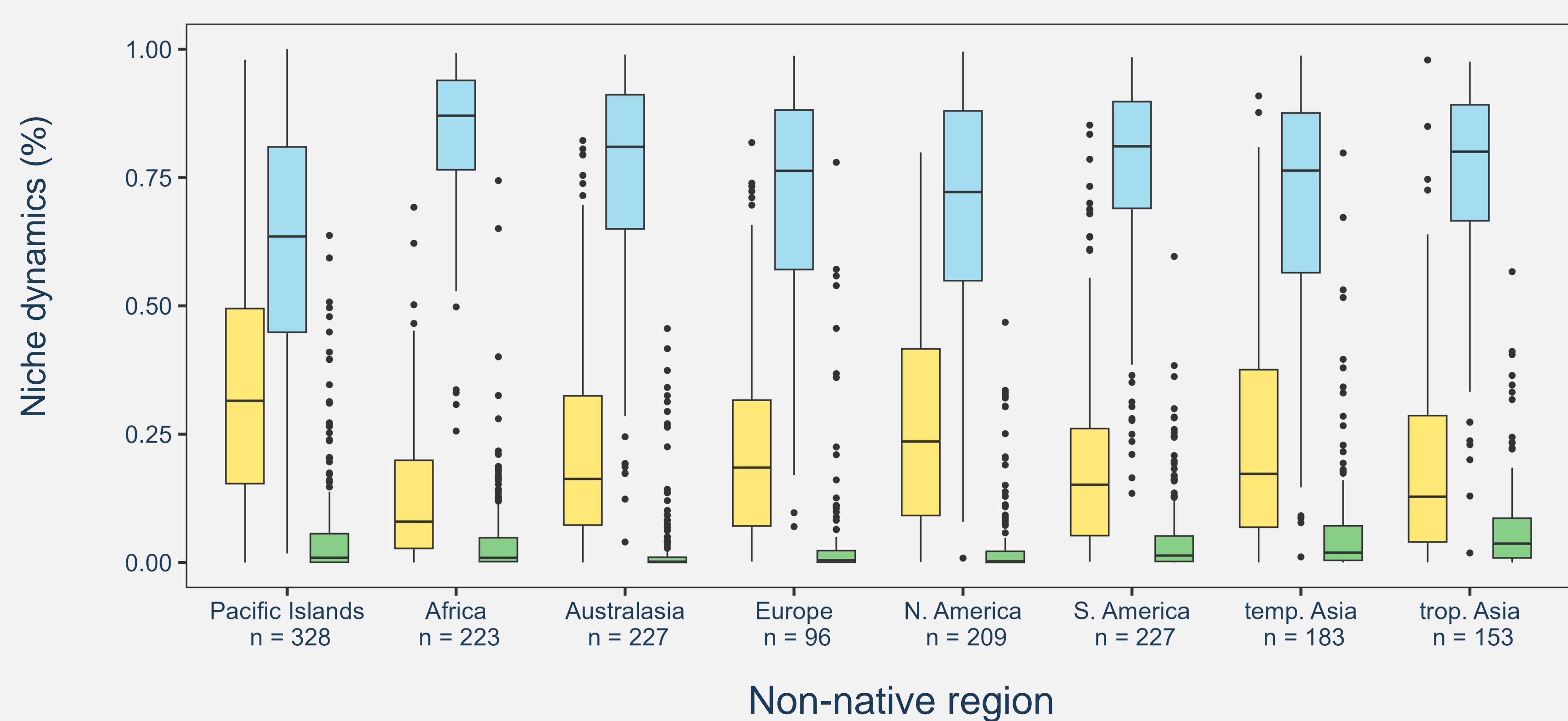
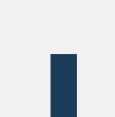


Figure 4: Niche dynamics between native and non-native regions. Colours correspond to Fig. 2.

## 4 IMPLICATIONS

Lack of niche switching and low expansion values



Underestimation of environmentally suitable areas in risk assessments less likely

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?

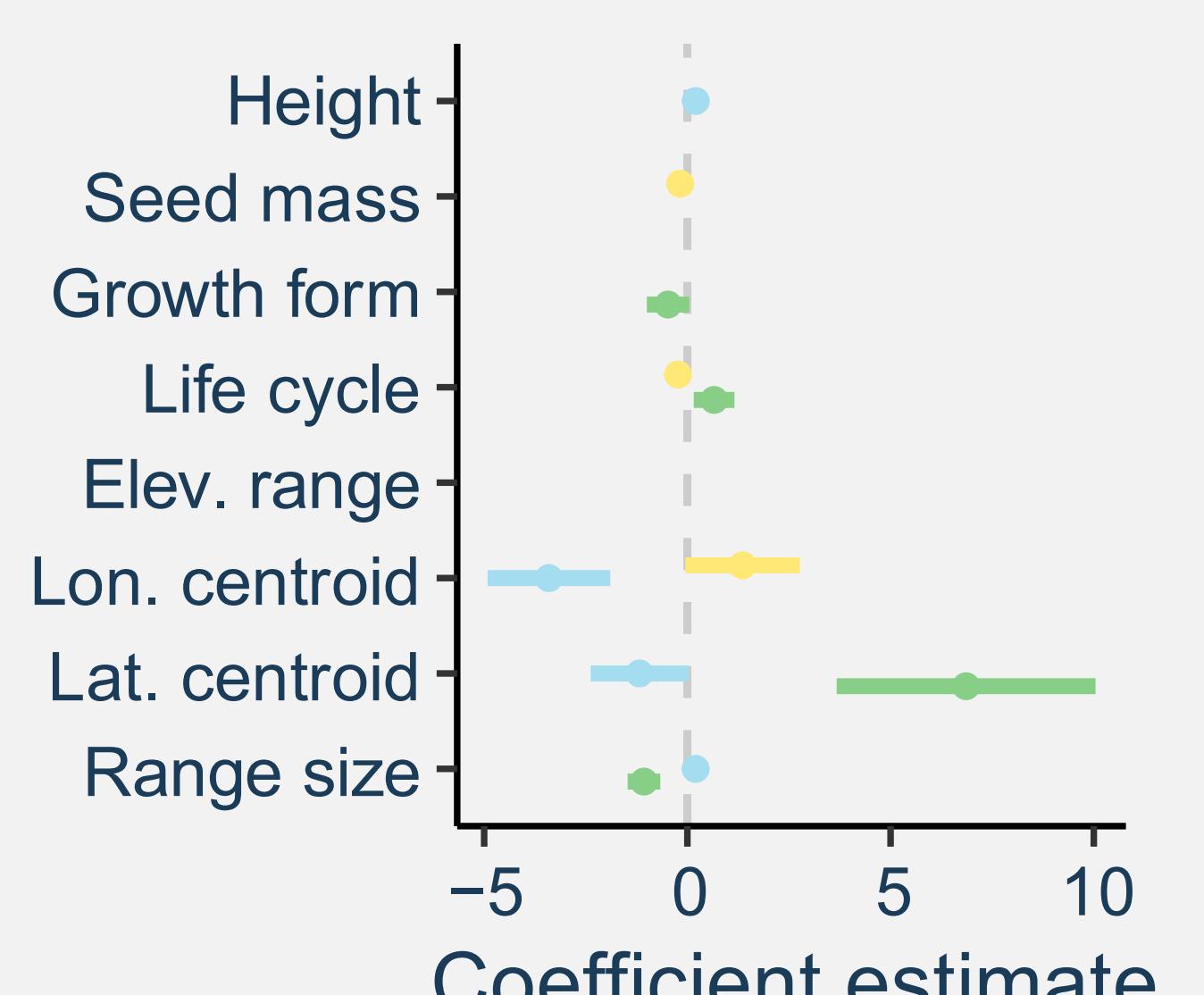
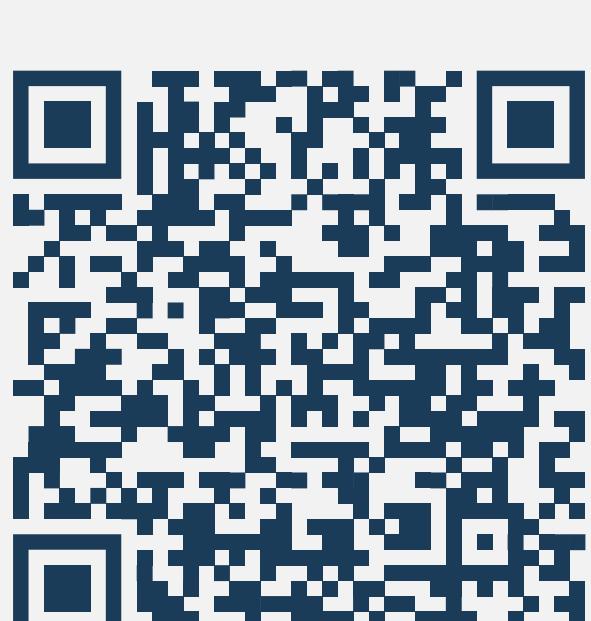


Figure 5: Trait effects on niche dynamic metrics. Error bars show the coefficient means and their 95 % confidence intervals.



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Website



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### References:

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