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Habitat niche partitioning among tree-living mangrove gastropods

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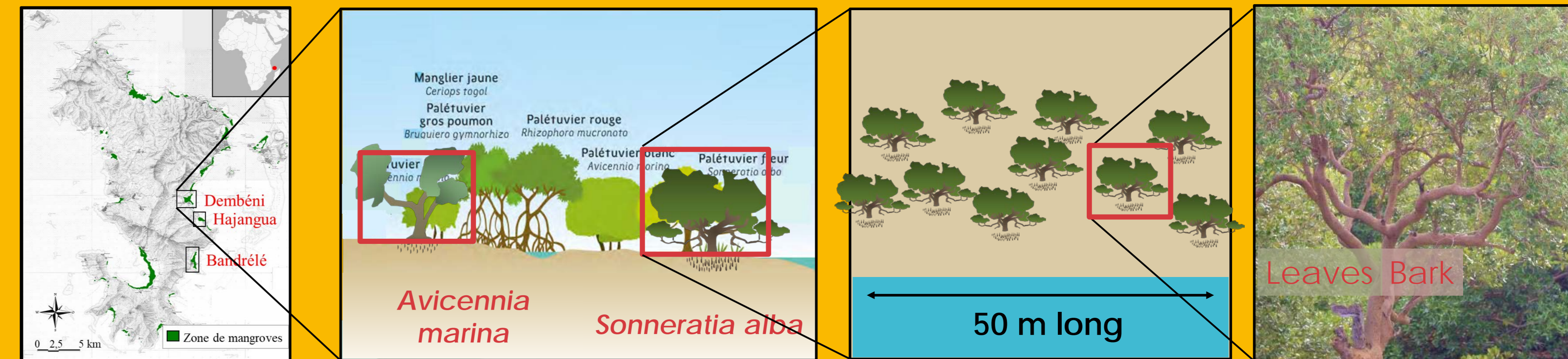


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Introduction

- Identifying **niche overlap** between **congeneric co-occurring species** helps identifying the **taxonomic resolution** meaningful for evaluating the **contribution** of these species to **ecosystem functioning**
- Mangroves** are **heterogeneous habitats** → endofauna to tree epiphytes
- Evaluating **habitat partitioning** between species contributes to better characterising the degree of **habitat heterogeneity**
- Identifying **patterns of species' distributions** of **morphologically similar congeneric species** → first step towards evaluating **species' ecological preferences** → important for conservation (Brown et al 1995)
- WIO mangroves host four *Littoraria* species with varying abundances and zonation patterns (Ried 1986 ; Torres et al 2008); **habitat partitioning** between tree leaves or bark has been **reported** previously but **never tested** (Cook 1990)
- Evaluate whether the *Littoraria* species found in the **mangroves of Mayotte** shared **identical habitat niches** with respect to **mangrove fringe** (seaward / landward) and **tree substrate** (leaves / bark)

Methodology



3 sites

2 fringes : landward & seaward

10 trees

2 substrates

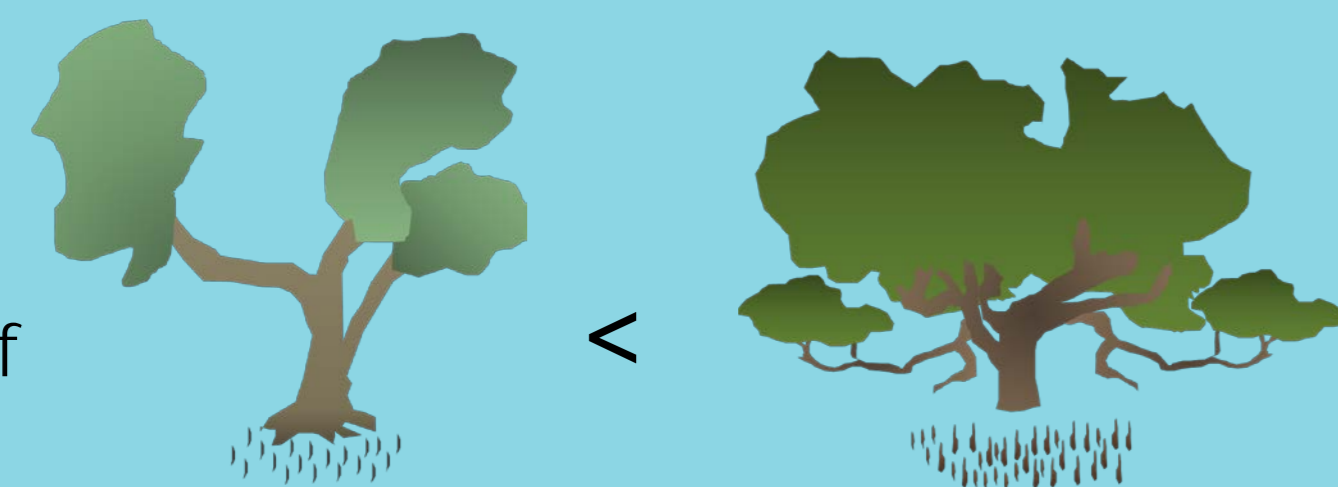
- 3-way nested ANOVA :**
 - Total abundance
 - Species abundance
 - Chi-square test :**
 - Relative species abundance
- Site / Fringe / Substrate

Species identification

Data analysis

Results

- Significant results of total abundances:
- Significant results of relative & species abundances:



Significant at 1 site only



L. scabra = co-dominant on seaward fringe & on bark ; significantly more abundant on bark of seaward fringe at single site



L. subvittata = always dominant



L. intermedia = rare, mostly on bark of seaward fringe



L. pallescens = co-dominant on leaves; on leaves, significantly more abundant on seaward fringe



Conclusion

- Different species strategies:**
 - L. subvittata*: **generalist** species, responsible for total abundance pattern
 - L. scabra* & *L. pallescens*: **specialists** of seaward fringe, **habitat partitioning** over substrate
 - L. intermedia*: **Rare** species, confined to leaves of seaward fringe
- Species distributions show ecological preferences otherwise invisible at genus level

References

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