



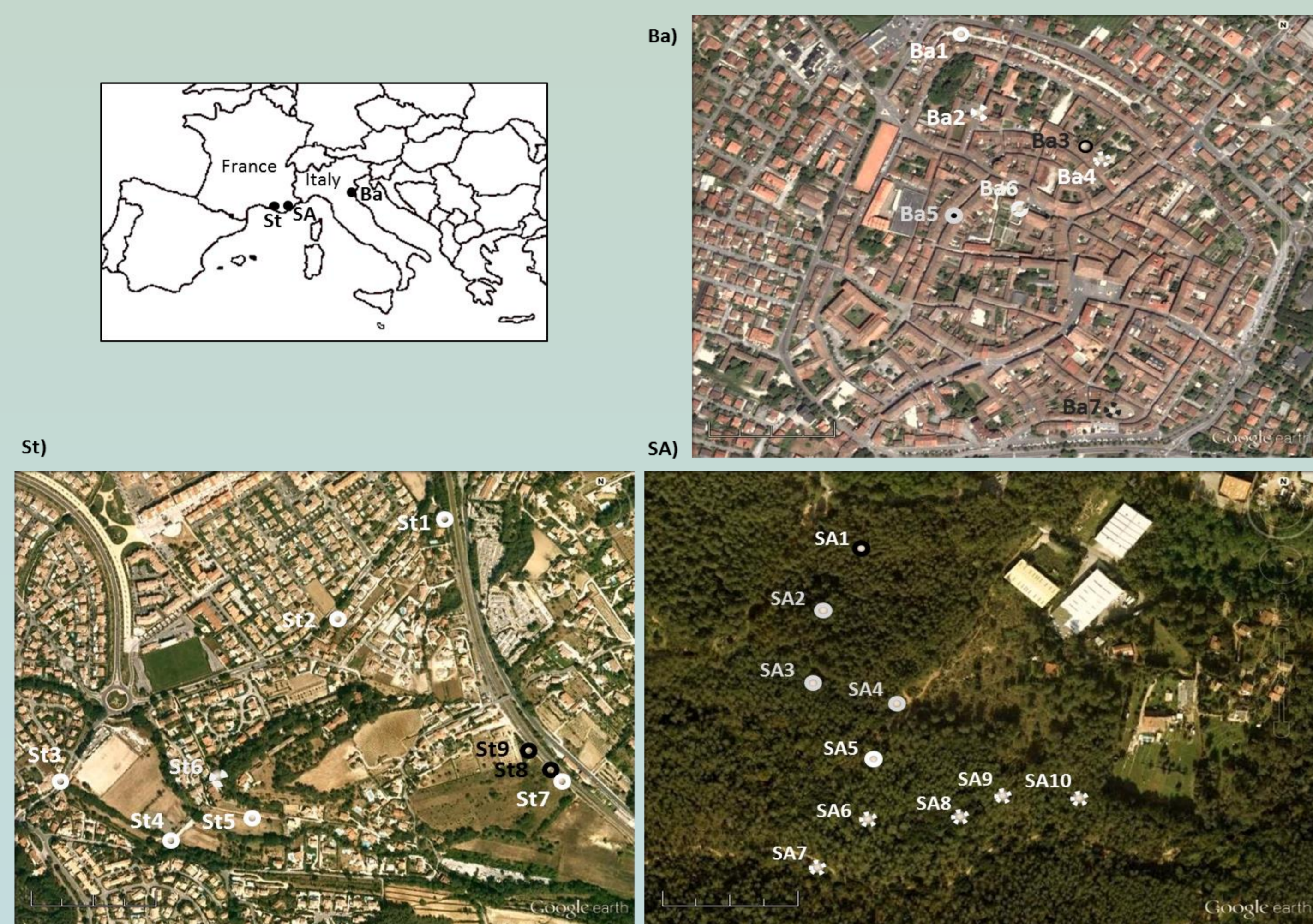
# Colony Breeding Structure of the Invasive Termite *Reticulitermes urbis*

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## Introduction

Invasive species cause severe environmental and economic problems. The invasive success of social insects often appears to be related to their ability to adjust their social organization to new environments. *R. urbis* is a *Reticulitermes* species recently described in Europe. This distribution and genetic data suggests that *R. urbis* has been introduced by trade in France and Italy, although the source populations of these invasive colonies have not been identified. To gain a better understanding of the biology of invasive termites, this study investigated the social organization of the subterranean termite, *R. urbis*, analyzing the breeding structure and the number of reproductives within colonies from three introduced populations.



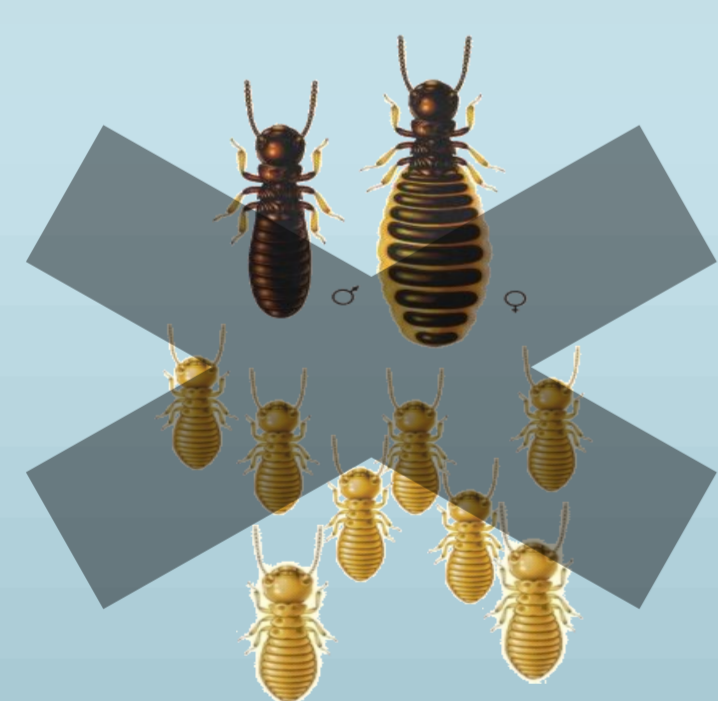
## Methods

- 520 samples from *R. urbis* workers from Saint Cyr sur Mer (St), Sophia Antipolis (SA) in France and Bagnacavallo in Italy (Ba).
- Genotyping of 8 microsatellite loci.
- Analysis using population genetic methods with Genepop and Fstat software.

**Figure :** Locations of the three populations studied in Europe and map of collection points in St-Cyr-sur-Mer (collection points St), Sophia Antipolis (collection points SA) and Bagnacavallo (collection points Ba). For each population, collection points belonging to the same colony (Table below) are indicated by the same color and symbol.

## Results

1- All colonies from the three populations were headed by both primary reproductives (kings and queens) and secondary reproductives (neotenics) to form extended-family colonies.



Simple family



Extended family

2- *F*-statistics values and relatedness coefficient permit to infer a high number of secondary reproductives (>100) only within colonies in semi-urbanized areas (Sophia Antipolis SA).

Colony boundaries	Family Structure	Number of secondary reproductives
<b>French populations</b>		
<i>St-Cyr-sur-Mer</i>		
St1, St2, St3, St4, St5, St7	Extended	≤ 2
St6	Extended	≤ 2
St8, St9	Extended	≤ 2
<i>Sophia Antipolis</i>		
SA1	Extended	>100
SA2, SA3, SA4	Extended	>100
SA5	Extended	>100
SA6, SA7, SA8, SA9, SA10	Extended	>100
<b>Italian population</b>		
<i>Bagnacavallo</i>		
Ba1	Extended	≤ 2
Ba2, Ba4	Extended	≤ 2
Ba3	Extended	≤ 2
Ba5	Extended	≤ 2
Ba6	Extended	≤ 2
Ba7	Extended	≤ 2

**Table :** *R. urbis* colony collection points from the three populations, family structure and number of secondary reproductives. Collection points are shown in Figure above.

## Conclusion

→ *R. urbis* appears to be the only *Reticulitermes* species with a social organization based solely on extended families in both native and introduced populations, suggesting no change in their social organization due to introduction.

→ The results also imply that the invasive success of *R. urbis* may be based on different reproductive strategies in urban and semi-urbanized areas.

## References

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