

# Genetic structure and conservation insights of the white-clawed crayfish (*A. pallipes* complex) across the Italian peninsula

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## Background

The white-clawed crayfish (*Austropotamobius pallipes* complex) was once widespread across the Italian peninsula. Over the last century, its range and number of populations have drastically declined due to diseases introduced by invasive crayfish and impacts of human activities. Today, *A. pallipes* and *A. italicus / fulcisianus* persist mainly in isolated water basins.

## Objectives

- ✓ Assess genetic variation across the Italian peninsula.
- ✓ Identify population structure and phylogeographic patterns.
- ✓ Use of genetic analysis to support the monitoring, conservation and restoration of ecosystems in Italian and Mediterranean landscapes.



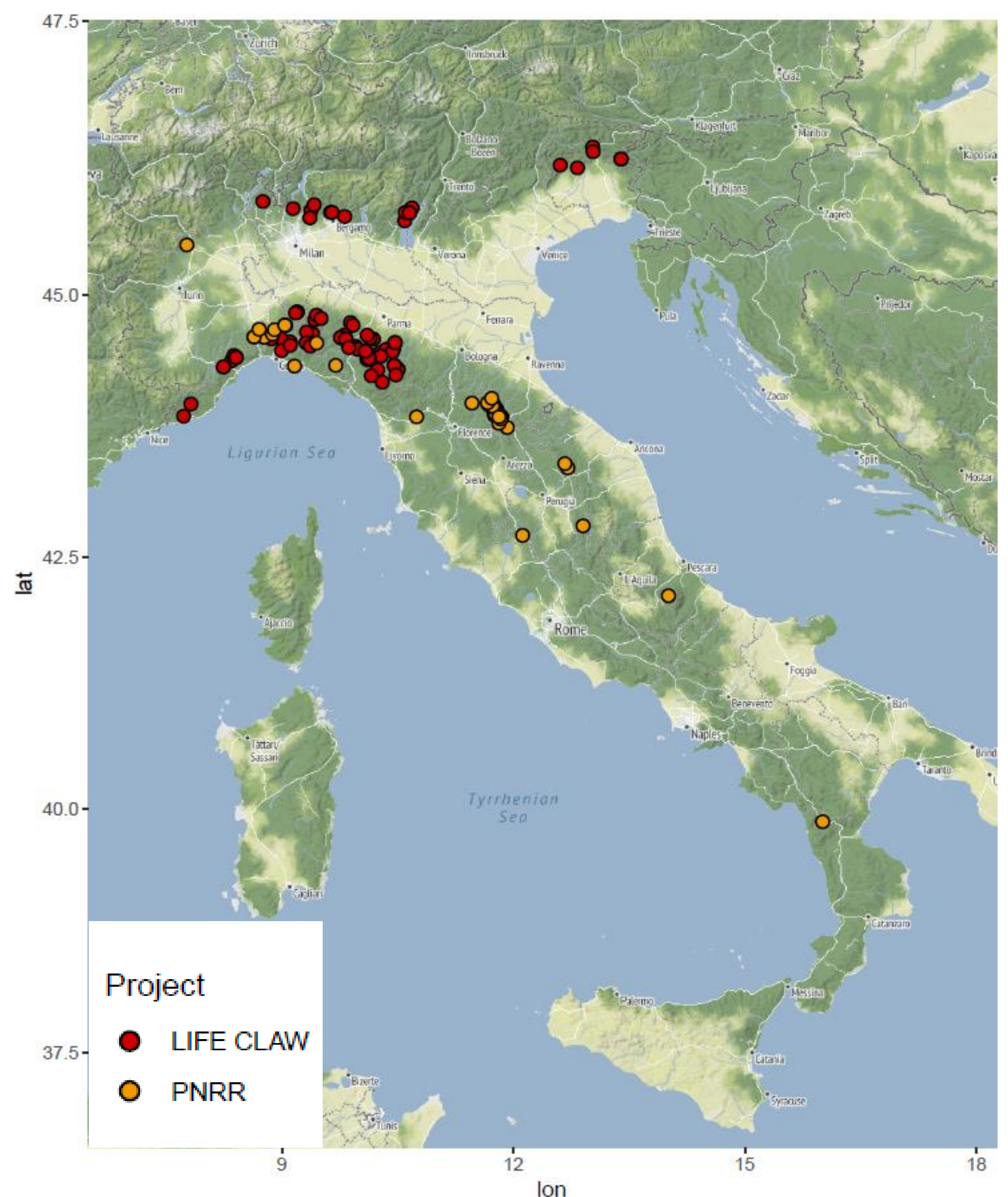
## Sampling

We collected a total of 2,590 samples from 124 populations from 8 different Italian regions: Lombardy, Liguria, Emilia-Romagna, Friuli-Venezia Giulia, Tuscany, Umbria, Abruzzo, Basilicata.

This sampling was achieved thanks to our participation in the LIFE CLAW and PNRR-NBFC projects.

## Methods

- **Mitochondrial analysis:** sequencing of an informative fragment of the mitochondrial Cytochrome Oxidase I (COXI) gene.
- **Nuclear variation:** Genotyping-by-Sequencing (ddRAD) methodology.



## Preliminary results

MtDNA data from 1,965 samples and 102 populations (LIFE CLAW data) revealed a clear genetic differentiation of *A. pallipes* in the north-west, and of *A. italicus/fulcisianus* in the rest of Italy.

Several haplotypes were detected, including private variants and others shared among nearby populations. The genetic sub-structuring observed within *A. italicus/fulcisianus* further supports previous hypotheses of geographically restricted subspecies. The ddRAD analyses are still ongoing.

## Acknowledgements

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