FORM PER PROGETTI BANDO DOTTORATO

1. Project title

Mechanisms of evolution and maintenance of alternative strategies in a polymorphic species

2. Proposer

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4. Key words
(Max. 5 – at least 2)

Alternative strategies, genomic, evolution, sympatric speciation, ecological niche modeling

5. Abstract
(Max.1.500 characters with spaces)

Heritable color polymorphisms play a crucial role in speciation and evolution, aiding species in adapting to different niches. Polymorphic lineages often show higher speciation rates, as seen in birds, fish, and lizards. The common wall lizard (*Podarcis muralis*), widespread in Europe, has three genetically determined morphs (yellow, white, red) linked to SPR and BCO2 loci. Yellow males follow a high-risk, high-testosterone strategy, prioritizing aggression over immunity, while white and red morphs favor longevity. This project aims to clarify the red morph's strategy, genetic links between color and behavior, and morph-specific fitness. It is divided into three tasks: understanding the red morph's ecological preferences and water balance, investigating whether a supergene structure links color and behavior through genome sequencing, and assessing morph fitness by studying speciation rates, breeding output, and long-term viability using niche modeling.