MOVERCULOSIS
MOVEMENT OF WILDLIFE HOSTS AND TRANSMISSION RISK OF ANIMAL TUBERCULOSIS
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Mapping Multi-Host TB Risk:
The Central Role of Wild Boar and Red Deer in Environmentally Mediated Transmission

Ferreira, Eduardo M., [1,2,3] , Cunha, Mónica V. [4,5] , Duarte , Elsa L. [1,6] , Mira, António [1, 3] , Santos, Sara M. [1,2,3]
[1] MED—Mediterranean Institute for Agriculture, Environment and Development and CHANGE—Global Change and Sustainability Institute, University of Évora, Mitra, Évora 7006-554, Portugal
[2] IIFA—Institute for Advanced Studies and Research, University of Évora, Vimioso Palace, Évora 7002-554, Portugal
[3] Conservation Biology Lab, Department of Biology, University of Évora, Évora, Portugal
[4] Centre for Ecology, Evolution and Environmental Changes (cE3c) and CHANGE—Global Change and Sustainability Institute, Faculty of Sciences, University of Lisbon, Lisbon, Portugal
[5] Biosystems and Integrative Sciences Institute (BioISI), Faculty of Sciences, University of Lisbon, Lisbon, Portugal
[6] Department of Veterinary Medicine, University of Évora, Mitra, Évora 7006-554, Portugal
Contact: ferreiraeduardo.mr@gmail.com

INTRODUCTION

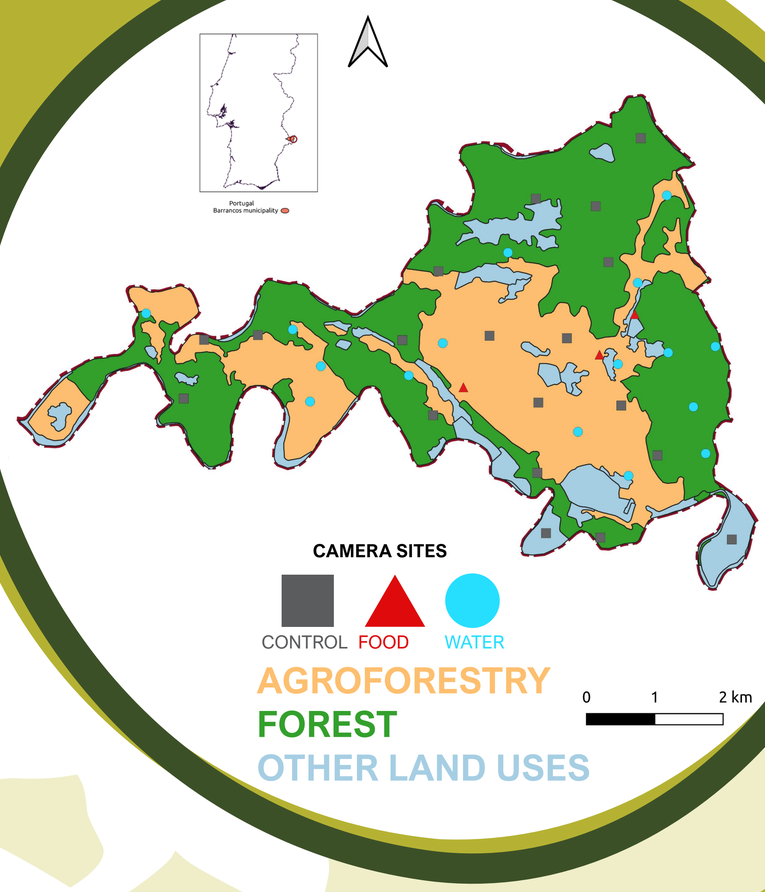
- Animal tuberculosis (TB) persists in multi-host communities
- Transmission occurs via shared contaminated environments
- Integration of host ecology and environmental data is crucial

OBJECTIVES

1. Characterise interspecies interactions
2. Detect MTBC DNA in environmental samples
3. Map spatial risk zones for TB transmission

METHODS

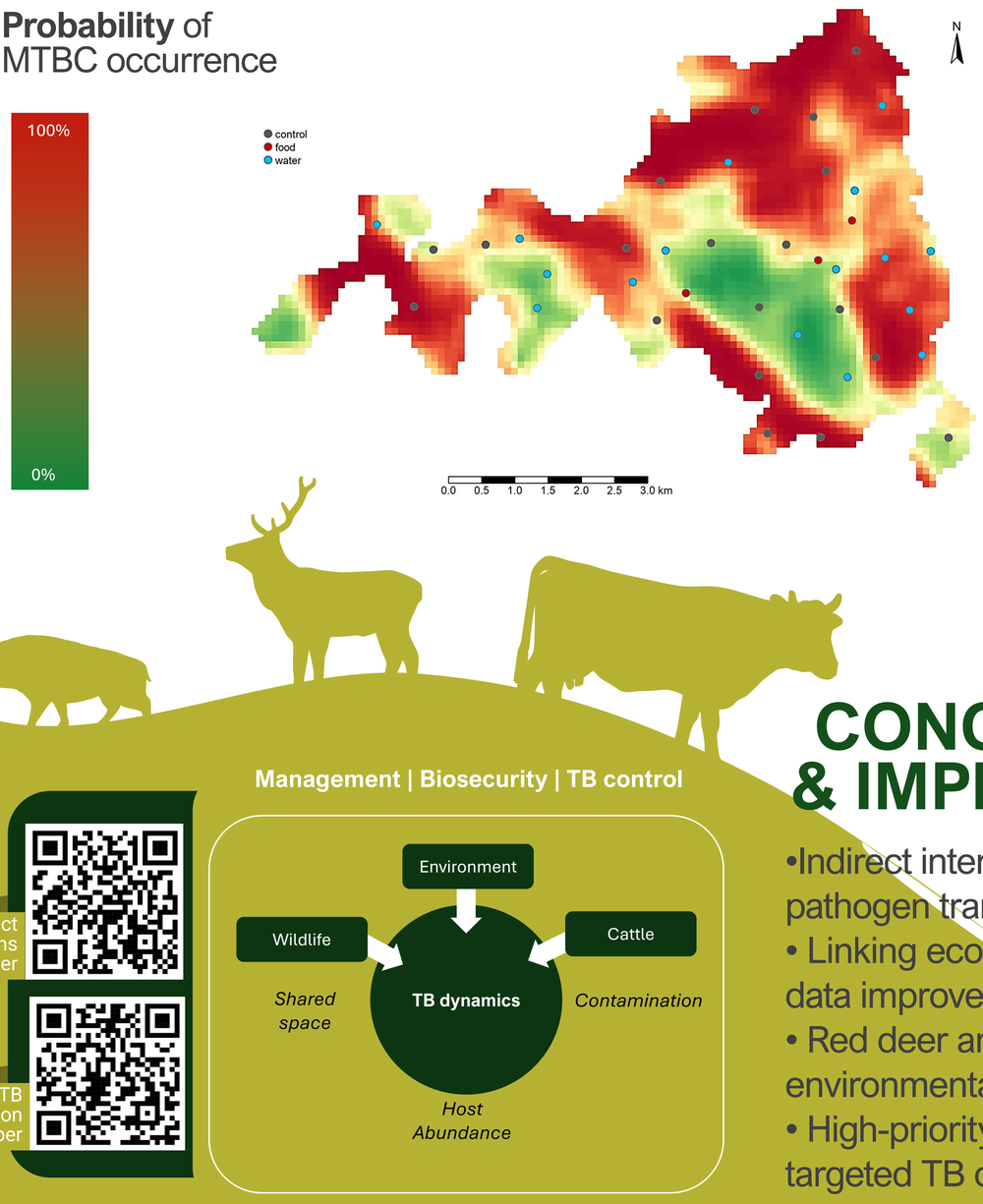
- Study area: **Barrancos, Portugal**
  Mediterranean Montado system
- 38 sampling sites:
  water, **food**, and **control**
- 89 environmental samples:
  water, soil, mud
- Camera trapping (2021–2022)
  → host space-use maps
- qPCR detection of MTBC
  (IS6110 target)
- GLM models
- Five **ecological hypotheses** tested:
  (H1–H5: human, landscape, topography, weather, natural resources)



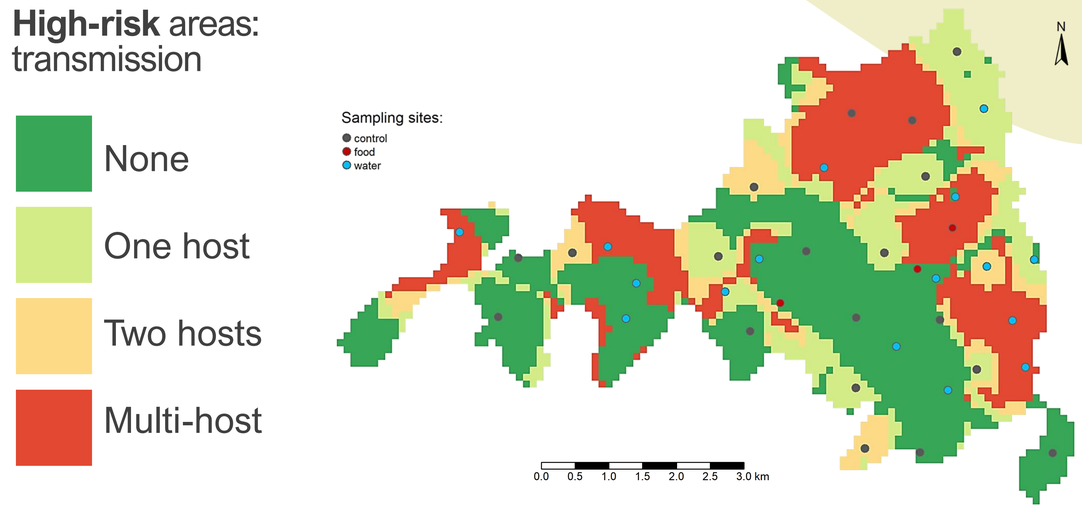
RESULTS

- Indirect interactions more frequent → **wet season**
- Natural resource availability increased wildlife-cattle interactions.
- **49%** environmental samples **positive** for MTBC DNA.
- Main contamination predictor: terrain slope
- **26.5%** area = high transmission risk (mostly forest)

ENVIRONMENTAL CONTAMINATION



TRANSMISSION RISK: A MULTI-HOST SCENARIO



CONCLUSIONS & IMPLICATIONS

- Indirect interactions: key drivers of pathogen transmission
- Linking ecological and contamination data improves spatial risk prediction
- Red deer and wild boar act as environmental amplifiers
- High-priority areas can be identified for targeted TB control

UNIVERSIDADE DE ÉVORA | MED Instituto Mediterrâneo para a Agricultura, Ambiente e Desenvolvimento | CHANGE Global Change and Sustainability Institute | U LISBOA UNIVERSIDADE DE LISBOA | ce3c centre for ecology, evolution and environmental changes | fct Fundação para a Ciência e a Tecnologia

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