

Molecular characterization of piroplasms and identification of tick vectors in central Spain

Nélida Fernández Pato ¹, Víctor Manuel Cacho Amaya ¹, Tania Ayllón Santiago ^{1,2}, Nerea García Benzaquén ^{1,2}, Raquel Gómez Lucas ¹, Lydia Calleja Bueno ¹, Isabel Rodríguez Hurtado ¹, Fátima Cruz López ^{1,2}

Faculty of Veterinary Medicine, Alfonso X el Sabio University ¹

VISAVET Health Surveillance Center-Animal Health Department, Faculty of Veterinary Medicine, Complutense University ²

Contact email: nfermpat@uax.es

INTRODUCTION & AIM

Piroplasmosis is an endemic tick-borne disease caused by *Babesia* and *Theileria* in Spain and can induce severe diseases in both animals and humans.



Hard tick species can act as vectors having different vectorial competence.



Identification of the tick species in each area and the piroplasms they harbor is crucial for improving surveillance, prevention and control strategies.

METHOD

Duration: 2023-2024 **Location:** Central Spain.

Samples: 302 ticks (Environmental Risk Surveillance Unit of the Community of Madrid) **21 host species:** ungulates, wild carnivores, small mammals, birds and domestic animals. 148 pools.



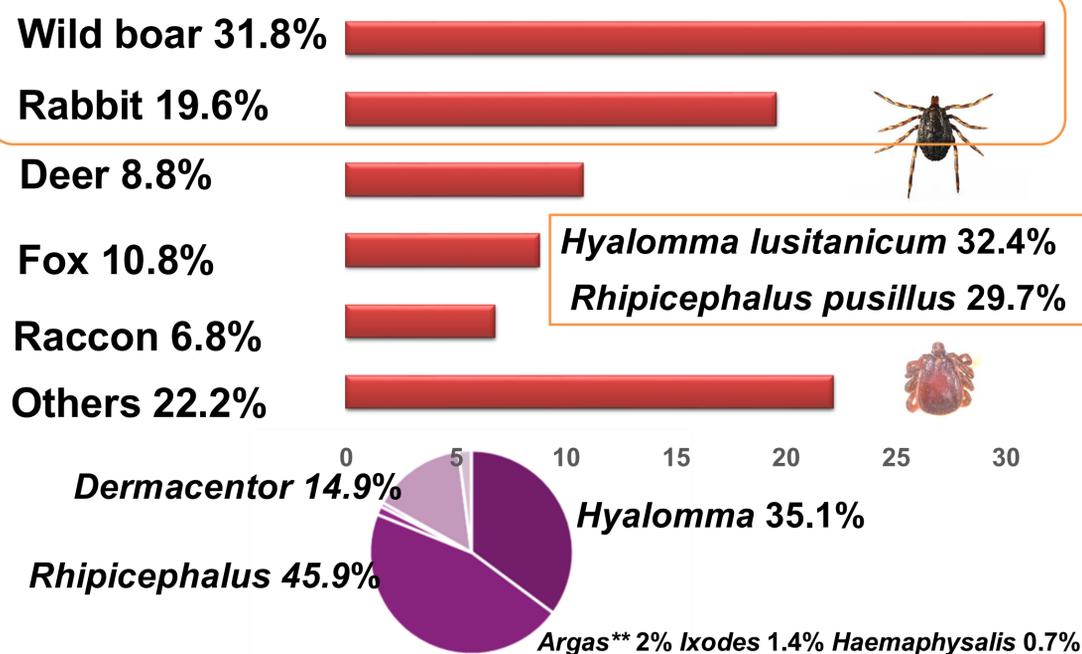
Morphological identification of ticks to species level (GARES group).



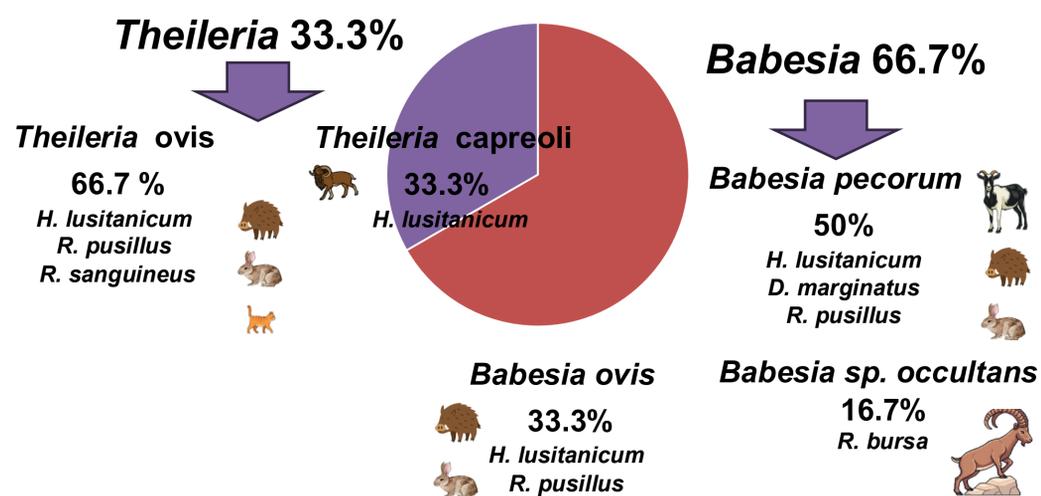
DNA extraction was followed by nested PCR for *Babesia* and *Theileria* detection (1).

RESULTS & DISCUSSION

% Animal species and % identified ticks



Piroplasms: prevalence, species and ticks



These findings suggest multispecies circulation and possible cross-transmission between wildlife and domestic environments.

CONCLUSION

The ecological and geographic spread of piroplasms in local tick populations underscores the need for continued surveillance in wildlife and domestic animals in central Spain.

FUTURE WORK / REFERENCES

Enhance ixodid phenology research and piroplasm detection to strengthen surveillance and control systems for hard-tick-borne pathogens.

(1) Jefferies R, Ryan UM, Irwin PJ. PCR-RFLP for the detection and differentiation of the canine piroplasm species and its use with filter paper-based technologies. *Vet Parasitol.* 2007;144(1-2):20-7.