STUDY OF PNEUMONIA PROCESSES IN THE PYRENEAN CHAMOIS *(Rupicapra p. pyrenaica)*

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ABOUT PNEUMONIAS IN ALPINE WILD RUMINANTS

There is clinical evidence of respiratory infection in Pyrenean chamois detected during field work by Wildlife Ecology & Health group, as macroscopic lesions compatible with pneumonias in hunted chamois necropsies.

Posautz *et al*. 2014, reported a study case of an acute die-off (Spring 2010) of an Alpine chamois population in the Eastern Austrian Alps due to bacterial bronco-pneumonia with Pasteurellaceae [5].

Several studies made in USA bighorn sheep reported that bacteria that are commonly re-lated to BHS pneumonia are *M. haemolytica, B. trehalosi, P. multocida* and *M. Ovipneumoniae* [1,2,6,7].

Some studies demonstrated pathogen transmission between wildlife and livestock [3,4,5].

OBJECTIVES

- Prevalence of clinical pneumonia in chamois population of NHR Freser-Setcases.
- Implication of Pasteurellaceae bacteria in the pneumonic processes.
- Molecular approach to the heterogeneity of the Pasteurellaceae strains isolated from chamois and sympatric domestic sheep.

MAT. & METH.

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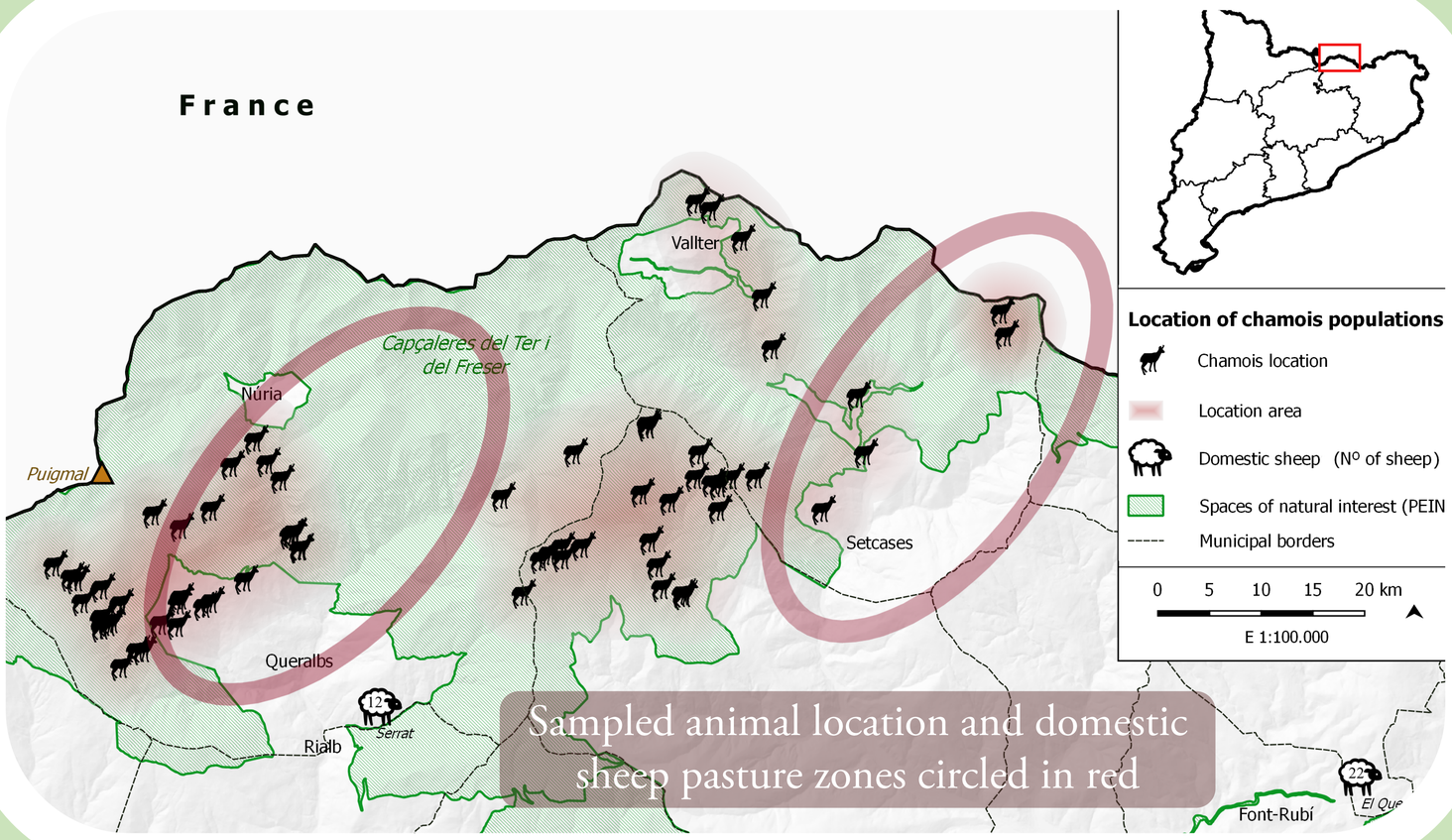
Hunted chamois lung evaluation + lung/nasal swabs and sympatric domestic sheep nasal swabs

Bacterial determination by:

1. Culture
2. DNA extraction
3. 16S PCR
4. Electrophoresis
5. DNA purification
6. Sequencing



Sampled animal location and domestic sheep pasture zones circled in red

Chamois and sympatric domestic sheep strain comparation with ERIC PCR and electrophoresis.

RESULTS

Prevalence of pneumonia in studied chamois				
Total	Females	Males	Camprodon	Ribes
58.3%	58.1%	58.8%	72.7%	50%

- Pasteurellaceae bacteria were found in 45.2% of studied chamois, from those: 28.6% of *Manhemimia spp*., 35.7% of *B. trehalosi* and 53.6% of *P. multocida.*
- 76.9% Pasteurellaceae positive chamois had pneumonia at necropsy.
- High prevalence of *P. multocida* in Camprodon
- Heterogeneity of Pasteurellaceae strains
- Two sheep share the same strain as one chamois

CONCLUSIONS

- Pneumonias are a real issue in NHR Freser-Setcases chamois.
- Pasteurellaceae bacteria as *Manheimia spp., B. trehalosi* and *P. multocida* are found in those chamois.
- Pasteurellaceae and *P. multocida* are significantly related to the study chamois pneumonias.
- There is more prevalence of *P. multocida* in Camprodon Valley, being a significant relation between both variables.
- Is needed to keep working on strain discrimination to achieve critical judgement about domestic sheep interaction in Pyrenean chamois pneumonias.

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3. Palmer *et al*. 2012. *Mycobacterium bovis*: A model pathogen at the interface of livestock, wildlife, and humans. Vet Med Int. 2012: 236205.
4. Plowright *et al*. 2017. Age-specific infectious period shapes dynamics of pneumonia in bighorn sheep. Ecology Letters. 20: 1325-1336.
5. Posautz *et al*. 2014. Acute die-off of chamois (*Rupicapra rupicapra*) in the Eastern Austrian Alps due to bacterial bronchopneumonia with Pasteurellaceae. Journal of Wildlife Diseases. 50(3): 616-620.
6. Shanthalingam *et al*. 2014. PCR assay detects *Manheimia haemolytica* in culture-negative pneumonic lung tissues of bighorn sheep (*Ovis canadensis*) from outbreaks in the Western USA, 2009-2010. Wildlife Disease Association. 50(1): 1-10.
7. Wood *et al*. 2017. How respiratory pathogens contribute to lamb mortality in a poorly performing bighorn sheep (*Ovis canadensis*) herd. Journal of Wildlife Diseases. 53(1): 126-130.