Does landscape composition influence the circulation of pathogens in Roe deer living in rural area

Julie Sevila, Hélène Verheyden, Céline Richomme, Herve Hoste, Monica Gonzalez Candella

[214] DOES LANDSCAPE COMPOSITION INFLUENCE THE CIRCULATION OF PATHOGENS IN ROE DEER LIVING IN RURAL AREA?

Sevila Julie[1, 2,3,4,6], Verheyden Helene[1], Richomme Celine[2], Hoste Herve[3,4], Gonzalez Candela Monica[6]

[1]INRA (French National Institute of Agricultural Research), UR035 CEFS (Behaviour and Ecology of Wildlife) Castanet-Tolosan, France ; [2]INRA, UMR1225 IHAP (Interactions Hosts- Pathogens) Toulouse, France; [3]ENVT (French National Veterinary School of Toulouse), UMR1225 IHAP (Interactions Hosts- Pathogens) Toulouse, France ; [4]French Agency for Food, Environmental and Occupational Health & Safety (Anses), Nancy laboratory for rabies and wildlife, Malzéville, France; [5]Veterinary College, University of Murcia , Spain ;[6]Email: julie.sevila@toulouse.inra.fr

Historically, roe deer (*Capreolus capreolus*) is a forestry ruminant. However, range and density of populations have evolved these last decades, increasing their proximity with human activities. Those changes can impact the circulation of pathogens, especially because of higher indirect or direct contacts with domestic animals. Our hypothesis is that the exposition of roe deer to pathogens is structured by the local landscape composition of roe deer habitat. Especially, we expect a higher prevalence and diversity of parasites in roe deer inhabiting in open areas (meaning anthropogenic areas). Between 2008 and 2011, in south-western of France, 199 roe deer inhabiting in a heterogeneous landscape, ranging from totally closed (wooded) to open (cultivated) habitat, were sampled. Individual roe deer home ranges were collected using GPS collars. Seroprevalences of several pathogens were obtained using ELISA tests: *Toxoplasma gondii* 38% (95% confidence interval: [30-45]), *Chlamydophila abortus* 18% [12-24], *Coxiella brunetii* 9% [5-14] and *Infectious Bovine Rhinotracheiti* 17% [11-23]. We used logistic regressions and multivariate analyses to estimate the association between serology and landscape factors. Our first results show a major effect of the year of sampling and, in a lesser extent, of wood and meadow proportions of roe deer home range on the probability to be seropositive. These results are discussed in relation to the biological determinants of each pathogen.