





10th Tick and Tick-Borne Pathogen Conference

29 August-2 September 2022 Murighiol, Danube Delta, Romania

Abstracts



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EE42 Bird species influence more the tick burden of French common birds than environmental conditions during the breeding season

Rataud A¹, Drouin A^{1, 2}, Pisanu B³, Moutailler S⁴, Bournez L⁵, Henry PY^{6, 7}, Marsot M¹

¹Université Paris Est, ANSES, Laboratory for Animal Health, Epidemiology Unit, Maisons-Alfort, France
²International Center of Research in Agriculture for Development (CIRAD), UMR ASTRE, Montpellier, France
³Office Français de la Biodiversité, UMS Patrimoine Naturel OFB/MNHN/CNRS, Paris, France
⁴ANSES, INRAE, Ecole Nationale Vétérinaire d'Alfort, UMR BIPAR, Laboratoire de Santé Animale, Maisons-Alfort, France
⁵ANSES, Nancy Laboratory for Rabies and Wildlife, Malzéville, France
⁶Mécanismes adaptatifs et Evolution (MECADEV UMR 7179), Muséum National d'Histoire Naturelle, Brunoy, France
⁷Centre de Recherches sur la Biologie des Populations d'Oiseaux (CRBPO), Centre d'Ecologie et des Sciences de la Conservation (CESCO UMR 7204), Muséum National d'Histoire Naturelle, Paris, France

Tick-borne diseases represent a serious threat for human and animal health worldwide. Host species can differ in their quality as a reservoir, which is their ability for producing infected ticks (i.e. reservoir host potential). Understanding the role of each host species in the production of infected ticks and the main factors that influence it is important to be able to prevent tick-borne diseases. The number of ticks produced by a host species is a key element of its reservoir host potential. Whereas many studies in Europe have focused on the tick burden of mammals (such as deer and rodents), few have considered birds although they also participate in the population dynamics of ticks, during the migration period (with a special importance for long-distance dispersal) and during the breeding period, when they contribute to the multiplication of ticks and pathogens. In this study, we explored the relative importance of bird species and of environmental conditions on the tick burden of birds from a French forest community, during their breeding period. The aim was to investigate the effect of life history characteristics if the bird species had the greatest influence on their tick burden and the effect of environmental factors if it did not. We first used a zero-inflated negative binomial model to test the relative influence of the year (as a proxy of environmental conditions) and of the bird species. We then studied the effect of bird extrinsic (year) and intrinsic factors (species, sex/age, mean body mass and mean foraging height) on the tick burden of birds. Finally, we developed a tick production index per bird species by considering both the mean tick burden and the host density for each bird species. We observed that tick burden of birds varied more between species than between years and the most infested birds belonged to the Turdidae family. Moreover, juveniles, species with a low foraging height in the vegetation and a high mean body mass were significantly more infested by ticks. These results led to the identification of the bird species the most involved in the tick production in the studied ecosystem. In the future and in a perspective of tick-borne disease prevention, this would allow us to determine which bird communities participate the most to acarological risk.