

**Abstract**

Insect is the largest and the most diverse class of animals and many species have significant impact to people and his activities, whether positive or negative. Since the late 19th century it is known, that bloodsucking insects can serve as vectors of pathogens, causative agents of many infection diseases. As climate change, the distribution and abundance of arthropods including bloodsucking insects can be affected. Emergence of new vector-borne diseases in Europe is likely to be among the most important effects of global changes. In recent years, several vector-borne diseases affecting humans and domestic animals have (re)emerged and spread in Europe with major health, ecological and socio-economical consequences. For example mosquito-borne West Nile virus affects human and animal health, as well. On the other hand, two newly emerged zoonosis, caused by Bluetongue and Schmallenberg viruses and transmitted by biting midges, affect mainly small domestic ruminants.

In the frame of broader projects, two epidemiological and entomological surveys focused on mosquitoes and biting midges as possible vectors of West Nile virus, Bluetongue or Schmallenberg virus were carried out in the Czech Republic. New mosquito and biting midges species were recorded for the Czech Republic, the presence of West Nile virus was found in mosquitoes as well as a new trypanosome species, *Trypanosoma culicavium*. Beside the faunistic studies, and screening for pathogen presence in insect, we studied also feeding preferences of mosquitoes, which strongly correlate with parasite transmissions as they influence the spectrum of the host contacts.