River landscape as a factor for *Dermacentor reticulatus* ticks spreading

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Dermacentor reticulatus is a blood feeding ectoparasite with wide host range including wild, domestic animals and also humans. *D. reticulatus* is the vector of variety of pathogens including Tick-borne encephalitis virus, *Rickettsia* spp. and the agents of canine babesiosis *Babesia canis canis*. This hard tick species has rapid developmental cycle, it can develop from eggs to adult stage within a single year. Together with high reproduction rate, ability to survive in harsh environment, long survival without blood meal and high adaptibility is making him a perfect candidate for effective spread in changing environment. Seasonal activity peaks in March, April and again in fall months September, October. While developmental stages – larvae and nymphs are nidicolous, adults are questing on the host on the vegetation. Intensive geographical spread was documented during the last decades for this tick species. Factors like climate change, socio-economic change, anthropogenic impact, agricultural practice are responsible for its expansion. As *D. reticulatus* is occurring in humid areas, it prefers riparian basins, swampy areas. Moreover, they are able to survive flooded for more than 3 months. River landscape or river valleys are significant ecological corridors for wildlife and contribute to the spreading of *D. reticulatus*. Riverland scape is thus very important part of the country for monitoring of the presence and spreading of *D. reticulatus*. Early identification of new spots is crucial for preventative measures as *D. reticulatus* can transmit various viral, bacterial and parasitic agents to human and animals.

The diversity and occurrence of ciliated protozoa in activated sludge

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The diversity of species of ciliated protozoa in natural reservoirs and streamsis realized in a wide range of values and can range from tens to hundreds of species [3]. In the conditions of artificial water bodies, the diversity of ciliated protozoan species is usually an order of magnitude lower. Among artificial water ecosystems, a special place is occupied by sewage treatment plants, where activated sludge is formed in aeration tanks. The conditions in which activated sludge organisms exist are regulated by the technological process and continuous energy subsidies. At the same time, differences in the composition of ciliated protozoa arise due to the different composition of wastewater, which depends on the region and types of production.

The stable conditions maintained in aeration tanks contribute to the stabilization of the structure of the assembly of protozoa. Despite a certain stability, changes in the species composition can be provoked by violations of the technological process and seasonal temperature fluctuations. Changes in the species composition also occur in the process of the so-called "aging" of activated sludge. The cause of the most radical changes in the species composition of the assembly of ciliated protozoa can be emergency situations associated with aeration violations or the ingress of toxic substances with sewage, and it can also be associated with the arrival of an excessive amount of organic substances.

Despite the expectation of a sufficiently low diversity of protozoa in activated sludge conditions, an analysis of publications shows that the general list of ciliated protozoa of activated sludge contains