(Invasive) alien vertebrates

Raccoon *(Procyon lotor)* as an emerging neozoon and potential reservoir for tick-borne pathogens in Germany

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DOI: 10.20315/evmc.2025.154

Raccoon (*Procyon lotor*) is a medium-sized omnivore belonging to the family of small bears (Procyonidae) that originally belongs to Central and Northern America. Nowadays, it has colonized different parts of the world due to deliberate or accidental releases and is listed as invasive neozoon in Germany. The recent rise in population densities is likely to increase the risk of pathogen transmission to humans, wildlife, and domestic animals. Many zoonotic pathogens are found in raccoons worldwide, but there is a lack of epidemiological data for most of Germany's raccoon populations concerning tick-borne pathogens.

Tissue samples of 485 free-ranging raccoons obtained as hunting bag in ten federal states of Germany between 2017 and 2021 were examined for the presence of five vector-borne pathogens (*Rickettsia* spp., *Borrelia burgdorferi* sensu lato (s.l.), *Bartonella* spp., *Babesia* spp., *Neoehrlichia mikurensis*) using molecular methods. *Borrelia burgdorferi* s.l. was detected in 21 (6.3%) raccoons, identified as *Borrelia afzelii* and *Borrelia burgdorferi* s.s. Multilocus Sequence Typing (MLST) of the *Borrelia burgdorferi* s.l. positive samples was conducted for the first time in raccoons showing five known STs (24, 171, 247, 465, and 782) and four new STs (1156-1158 and 1164). *Rickettsia* spp. was found in 26 (7.8%) individuals, identified as *Rickettsia helvetica* (n = 5)*, Rickettsia felis* (n = 2), and *Rickettsia conorii* subsp. *raoultii* (n = 1). *Bartonella* spp. was confirmed in 3 (0.63%) raccoons. *Neoehrlichia mikurensis* and *Babesia* spp. were not detected.

Future studies should monitor these invasive omnivore populations. However, raccoons may act as reservoir for pathogens, especially for *Anaplasma* spp. and *Rickettsia* spp., between humans, domestic animals, zoo animals, and wildlife, with a risk of infection due to their invasive behaviour and synanthropic habitat.