

Long-term seroprevalence monitoring of arenavirus, hantavirus and cowpox virus in Polish bank voles (*Myodes glareolus*)

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Rodents are known to be reservoir hosts of zoonotic viruses and therefore play a significant role in the dissemination of these pathogens. Using immunofluorescence assays, we carried out the first long-term seromonitoring programme for hantavirus, arenavirus and cowpox virus infections in bank voles from three ecologically similar, but separate, sites in Poland. We screened for three viral species and detected antibodies against all three: PUUV, CPXV and LCMV. The overall seroprevalence of combined viral infections was 25.9% [23.0-29.1] and was mostly attributed to CPXV. Only 2 cases of LCMV were detected (0.3% [0.2-0.9]), and only 5 of PUUV (0.76% [0.4-1.6]). The seroprevalence of CPXV varied significantly between sites, years in which the surveys were undertaken, host sexes (higher in male voles) and age classes (highest in the older animals). There were also significant interactions reflecting different rates of increase in seroprevalence across the study period in the three study sites and variation between study sites in the age-related pattern of prevalence. Our results, therefore, make a significant contribution to the understanding of the role of wild bank vole populations in the maintenance and dissemination of these viral pathogens and identify key factors that affect the magnitude of seroprevalence in specific host populations.

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