

**Endemism of *Salmonella* Typhimurium does not compromise reproductive success in
Great (*Parus major*) and Blue (*Cyanistes caeruleus*) Tits**

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ABSTRACT

Endemic infections with the common avian pathogen *Salmonella enterica* subspecies *enterica* serovar Typhimurium (*Salmonella* Typhimurium) may impose a significant cost on host fitness and reproduction. In this study, we determined the potential of endemic *Salmonella* infections to reduce the reproductive success of blue (*Cyanistes caeruleus*) and great (*Parus major*) tits by correlating eggshell infection with reproductive parameters (egg volume, clutch size, number of nestlings and number of fledglings). The fifth egg of each clutch was collected from the nest boxes in 53 ancient deciduous forest plots in Flanders that differ in forest fragmentation and tree species composition. Out of 101 sampled eggs (65 great tit eggs and 36 blue tit eggs), seven *Salmonella* Typhimurium isolates were recovered from 7 different forest plots by isolation methods (ISO 6579-2002). The low bacterial prevalence was reflected by a similarly low serological prevalence in the nestlings, determined by indirect-ELISA procedures. Presence of *Salmonella* did not affect reproductive parameters, nor the body condition of the fledglings. Phage typing showed that the isolates belonged to the definitive phage types (DT) 193 and 99, and multi-locus variable number tandem repeat analysis (MLVA) demonstrated a high similarity among the tit isolates. These findings suggest endemism of passerine-adapted *Salmonella* strains in wild blue and great tit populations with host pathogen co-existence.