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In-Host Dynamics of Mycoplasma Infections: Conjunctivitis in Wild Passerine Birds

The host-pathogen interaction is at the core of every infectious disease system, and provides an important foundation from which to study infectious disease at the individual, population and community levels. This work uses tools from applied dynamical systems and bifurcation theory to investigate how different aspects of the host immune response affect the progression of a localized bacterial infection caused by small, persistent bacteria known as mycoplasmas. The goal is to better understand observed variation within and between host species in the motivating biological system: infectious conjunctivitis in the house finch (*Carpodacus mexicanus*) and other passerine birds caused by the novel pathogen *Mycoplasma gallisepticum*.