Equations

Two species of hosts interact with each other in a community. Infections can occur through conspecific, heterospecific, or environmental transmission. The rate of transmission is determined by the infectious individual or virion. Infectious individuals of both host species shed free-living infectious virions into the environment at a constant rate.

Parameters and Variables

transmission rate for more competent host (infections contact-1 day-1)

transmission rate for less competent host (infections contact-1 day-1)

environmental transmission rate (infections contact-1 day-1)

birth rate (births day-1)

death rate (day-1)

recovery rate (day-1)

shedding rate (virions day-1)

viral degradation rate (day-1)

Susceptible individuals

Infectious individuals

Recovered individuals

free-living infectious virions