**Text S3:** **Derivation of the Basic Reproduction Number of LF in the Presence of Malaria**

Following an identical procedure to Supporting Information S2 by considering equations (1) – (14) in the main text, we first derive the matrix of new infections  where the elements  () for



and the functions  are given by , , , , , , , , , , , , ,  (with ). We can similarly calculate elements of the matrix  as  where , , , , , , , , , , , , , .

Substitituting , evaluating the matrices at the LF-free equilibrium and forming the next-generation matrix  allows the dominant eigenvalue (and hence ) to be calculated. Note also that the value of  that emerges from the next-generation approach needs to be raised to the power of three in order to be consistent with the standard definition of the basic reproduction number.