# A theoretical analysis of an anthrax model with vaccination

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**Abstract.** In this paper, we investigate the dynamics of the effects of vaccination in an anthrax outbreak within wild animals under the assumption that the infection is carried out by both the infected animals and infected carcasses. The model consists of a system of non-linear ordinary differential equations. The model is suitably rescaled into an evolution system with non-dimensionalized unknowns and systematically investigated. Positivity, boundedness global existence and uniqueness of the solutions are established. In particular, the stability of biologically relevant steady states are discussed.

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