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ECOEPIDEMIC MODELS WITH DELAY

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Ecoepidemiology studies the direct and indirect effects that diseases have on interacting populations, [6]. The basic idea underlying these models is that in the framework of an interacting population model, consisting in general of, but not limited to, two populations, a disease which can be contracted and transmitted by contact also spreads in at least one of the populations. The first models of such kind are [2] and independently of each other, [1; 3]. Infected individuals thus have explicitly to be taken into account in the model, [4], [5]. While the competition or predation of a species on another one has in general "immediate" effects, in the sense that the caught prey dies on the spot, the action of diseases is more subtle. It is well known that they may have more or less prolonged incubation periods, and the infectivity of diseased individuals may be effective even before symptoms are manifested and last in time. In the context of interacting populations we will formulate and investigate a dynamical system modelling this situation.

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