

How diseases affect symbiotic communities

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The author in recent years has examined the effects that infectious diseases carry on interacting populations. It appears that at times the disease might be used to control pests, or that the introduction one of the species acts as if the underlying SI epidemics model for the other one would be changed into an SIS one. In this note we want to extend the analysis to species which live in symbiosis, to see whether similar phenomena can be foreseen also for this case.

References

- [1] E. Venturino, The influence of diseases on Lotka-Volterra systems, *Rocky Mountain Journal of Mathematics*, vol. 24, p. 381-402, 1994.
- [2] E. Venturino, Epidemics in predator-prey models: disease among the prey, in O. Arino, D. Axelrod, M. Kimmel, M. Langlais: *Mathematical Population Dynamics: Analysis of Heterogeneity, Vol. one: Theory of Epidemics*, Wuertz Publishing Ltd, Winnipeg, Canada, p. 381-393, 1995.
- [3] E. Venturino, The effects of diseases on competing species, *Math. Biosc.*, vol. 174, p. 111-131, 2001.
- [4] E. Venturino, Epidemics in predator-prey models: disease in the predators, *IMA Journal of Mathematics Applied in Medicine and Biology*, vol. 19, pp. 185-205, 2002.

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