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*An alternative formulation for a delayed logistic equation*

The logistic equation with time delay is closely linked to the evolution of the theory of delay differential equations (DDE). Known in the mathematical community as Wright's equation, it is a standard example of the richness of behaviors exhibited by DDE, but also of the problems that arise in their analysis. However, the delayed logistic equation is seldom used in theoretical ecology. After an introduction to the delayed form of the logistic equation, I will discuss the reasons that lead to its shunning by the theoretical ecology community. I will then propose an alternative formulation of the equation taking into account survival through the maturation process. This alternative form, of which a global analysis has been conducted, has a totally different behavior. I will describe this behavior, pointing out situations in which our equation seems better suited for the description of single species dynamics with delay than the classical DDE logistic.

This is joint work with Lin Wang and Gail Wolkowicz.