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Peng Feng* (pfeng@fgcu.edu), Room 28, Modular 2, Florida Gulf Coast University, Fort Myers, FL 33965. *Global and Blow-up Solutions in a Mutualistic Model.*

We study the global and blow-up solutions for a strong degenerate reaction diffusion system modeling the interactions of two biological species. The local existence and uniqueness of classical solutions are established. We further give the critical exponent of reaction and absorption terms for the existence of global and blow-up solutions. We show that the solution may blow up if the intraspecific competition is weak. This supports ecologist A.J. Nicholson's conclusion that intraspecific competition is the main factor regulating population size. (Received January 03, 2006)