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Robert Stephen Cantrell*, Department of Mathematics, The University of Miami, Coral Gables, FL 33124, and **Daniel Ryan**. *Avoidance behavior in intraguild predation communities: A cross-diffusion model.*

A cross diffusion model of an intraguild predation community where the intraguild prey employs a fitness based avoidance strategy is examined. The avoidance strategy employed is to increase motility in response to negative local fitness. Global existence of trajectories and the existence of a compact global attractor is proved. It is shown that if the intraguild prey has positive fitness at any point in the habitat when trying to invade, then it will be uniformly persistent in the system if its avoidance tendency is sufficiently strong. This type of movement strategy can lead to coexistence states where the intraguild prey is marginalized to areas with low resource productivity while the intraguild predator maintains high densities in regions with abundant resources, a pattern observed in many real world intraguild predation systems. Additionally, the effects of fitness based avoidance on eigenvalues in more general systems are discussed. (Received September 14, 2013)