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Azmy Ackleh and John Cleveland* (yxs8495@louisiana.edu), P.O. # 44356, Lafayette, LA 70504. A Selection-Mutation Model: A Formulation on the Space of Measures.

In many selection-mutation models (or models with distributed growth and mortality rates) which have been recently formulated on the Banach space of integrable (L^1) functions it is shown that for small mutation kernels the long time behavior of solutions manifests itself in a dirac measure centered at the fittest trait. Thus, the solution limit is not in the state space. To remedy this and to treat discrete and continuous models in one setting we formulate a general selection-mutation model on the space of finite signed measures. We establish existence-uniqueness of solutions to this model. We also show that by choosing appropriate mutation kernels this model can be rigorously reduced to the pure selection model and to a discrete selection-mutation system that we have recently studied. (Received February 02, 2008)