1056-92-1197   **Azmy S Ackleh** and **Paul Leonard Salceanu*** (`pls8855@louisiana.edu`), 416 Kim Dr., Lafayette, LA 70503, and **Baoling Ma**. *Coexistence of Ecotypes in a Quasilinear Size-Structured Population Model.* Preliminary report.

We investigate coexistence (in the sense of uniform persistence) of all ecotypes in a quasilinear size-structured population model of McKendrick - von Foerster type. By choosing specific forms of the growth, mortality and reproduction functions, we integrate the PDE model to obtain a $2n$-dimensional ODE model for which we focus on the case when individuals of ecotype j may produce offspring of ecotype i with probability γ_{ij}. We show that if the stochastic matrix $(\gamma_{ij})_{1\le i,j\le n}$ is irreducible then coexistence of all ecotypes is possible, provided that the extinction equilibrium point is unstable in the linear approximation. In the end, we provide numerical simulations that address the outcome of the model in the case when $(\gamma_{ij})_{1\le i,j\le n}$ is reducible, but each of its block-diagonal components is irreducible. (Received September 21, 2009)

1