1046-37-460   **Paul Leonard Salceanu*** (`salceanu@mathpost.asu.edu`), Department of Mathematics, Arizona State University, P.O. Box 871804, Tempe, AZ 85287-1804, and **Hal L. Smith**, Department of Mathematics, Arizona State University, P.O. Box 871804, Tempe, AZ 85287-1804. *Liapunov Exponents and Persistence in some Discrete Dynamical Systems.* Preliminary report.

The theory of Liapunov exponents and methods from ergodic theory have been employed by several authors in order to study persistence properties of dynamical systems generated by ODEs or by maps. Here we derive sufficient conditions for uniform persistence, formulated in the language of Liapunov exponents, for a large class of dissipative discrete-time dynamical systems on the positive orthant of $\mathbb{R}^n$, having the property that a nontrivial compact invariant set exists on a bounding hyperplane. We require that all so-called normal Liapunov exponents be positive on such invariant sets. The results ensure the existence of a compact attractor in the interior of the orthant which attracts points of the interior. We apply the results to a plant-herbivore model, showing that both plant and herbivore persist, and to a model of a fungal disease in a stage-structured host, showing that the host persists and the disease is endemic. (Received September 03, 2008)