Periodicity versus chaos in certain population models

Abstract. Using recent results in one-dimensional dynamics, many of the well-known properties of the logistic family can be proved for more general families. We investigate two standard models in population dynamics. Each system under consideration has a unique attractor, and we describe parameter sets corresponding to different types of attractors. Although systems with periodic attractors are dense in parameter space, strongly chaotic systems still appear with positive probability. Natural measures (asymptotic distributions) and their stability properties are considered. We also discuss the concept of chaos in the context of one-dimensional modeling.