1163-92-480 **Jim M Cushing*** (cushing@math.arizona.edu), The University of Arizona, Department of Mathematics, 617 N Santa Rita, Tucson, AZ 85719-1108. *Does evolution select against chaos?*

Despite the ubiquity of chaotic attractors in many theoretical equations of population dynamics, unequivocal evidence of its occurrence in biological populations is sparse and is, for the most part, limited to populations manipulated in laboratory settings. One of the numerous hypotheses offered to explain this is that evolution selects against complex dynamics in favor of equilibrium dynamics. We investigate this hypothesis by means of a Darwinian dynamics version of the iconic Ricker difference equation. We investigate how the threshold e^2 for the onset of complexity (i.e. the destabilization of an equilibrium and a period-doubling bifurcation cascade to chaos) is affected by allowing the model coefficients to evolve according to Darwinian principles. We find that when evolution is slow, the Darwinian Ricker equation has an onset of complexity threshold larger than e^2 and that, in this sense evolution, selects against complexity. On the other hand, when evolution is fast the threshold can be less than $\exp(2)$ and, in this sense, evolution selects for complexity. In the latter case, the onset of complexity is by means of a Naimark-Sacker bifurcation, not a period-doubling bifurcation. (Received September 07, 2020)