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Daniel M Hadley* (dhadley@mail.uri.edu), Department of Mathematics, University of Rhode Island, Kingston, RI. *Global dynamics of some second order quadratic fractional difference equation.* Preliminary report.

We consider the following quadratic fractional difference equation

$$x_{n+1} = \frac{Ax_n^2 + Cx_{n-1}^2 + Ex_{n-1}}{ax_n^2 + cx_{n-1}^2 + ex_{n-1}}, \quad n = 0, 1, \dots$$

with all coefficients and initial conditions non-negative. Such equation can have at most two positive equilibrium solutions and several periodic solutions. We investigate local stability of the equilibrium solutions and of periodic solutions. We find the basins of attraction of both of these solutions and give a global dynamics of the considered equation in several regions of parameters. (Received February 12, 2013)