1077-92-84 **Bonni J Kealy*** (bkealy@math.wsu.edu), Department of Mathematics, Washington State University, Pullman, WA 99164-3113, and **David J Wollkind** (dwollkind@wsu.edu), Department of Mathematics, Washington State University, Pullman, WA 99164-3113. *Vegetative Turing Pattern Formation: A Historical Perspective.*

An interaction-diffusion plant-surface water model system for the development of spontaneous stationary vegetative patterns in an arid flat environment is investigated by means of a weakly nonlinear diffusive instability analysis originally applied to a particular set of chemical reaction-diffusion equations. The main results of this analysis can be represented by closed-form plots in the rate of precipitation versus the specific rate of plant density loss parameter space. From these plots, regions corresponding to bare ground and vegetative patterns consisting of tiger bush, labyrinth-like mazes, pearled bush, irregular mosaics, and homogeneous distributions of vegetation, respectively, may be identified in this parameter space. Then those predictions are compared with both relevant observational evidence and the existing chemical pattern formation results from that particular set of reaction-diffusion equation as well as placed int eh context of Alan Turing's seminal 1952 diffusive instability mechanism employed historically as a paradigm for morphogenesis. (Received July 22, 2011)