We establish the existence of traveling wave solutions for a nonlinear partial differential equation that models a logistically growing population whose movement is governed by an advective process. Conditions are presented for which traveling wave solutions exist and for which they are stable to small semi-finite domain perturbations. The wave is of mathematical interest because its behavior is determined by a singular differential equation and those with small speed of propagation steepen into a shock-like solutions. Finally, we indicate that the smoothing presence of diffusion allows wave persistence when an advective slow moving wave may collapse.