

1138-92-384

Azmy S Ackleh*, Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, and **Amy Veprauskas**, Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504. *Examining the effect of evolution in response to a disturbance on population dynamics.*

When exposed to a prolonged disturbance, short-lived species may possess the potential to rapidly evolve in response to the disturbance, thus mitigating its effects. This evolution may result in changes in population dynamics, such as allowing a population to persist at higher levels of a toxicant than is possible without evolution. Here we apply evolutionary game theory to Leslie matrix models to obtain Darwinian equations that couple population and evolutionary dynamics. We then analyze the resulting evolutionary models to understand the change in population dynamics due to evolution. We show that evolution in response to a disturbance may alter persistence outcomes as well as the complexity of the population dynamics. (Received February 13, 2018)