1158-37-159 **Md Rafiul Islam*** (rafiul.islam@ttu.edu), 1612 Avenue Y Apt 205A, LUBBOCK, TX 79401, and **Angela Peace** and **Matt Gray**. *Mathematical model of an Emerging Fungal Pathogen Batrachochytrium Salamandrivorans transmission on the Eastern Newt with multiple stages of infections.*

Epidemic dynamics of infectious diseases with multiple routes of transmission are complex. Mathematical models can be used to determine invasion potential and identify which transmission pathway is dominant and can ultimately help identify appropriate intervention strategies. We developed compartmental host-pathogen models to examine the transmission dynamics of an emerging fungal pathogen on a North American salamander population. Multiple stages of infection are incorporated into the model, allowing disease-induced mortality and zoospore shedding rates to vary as the disease progresses. Parameter sensitivity analysis shows that the recovery and disease-induced mortality rates, the length of the incubation period, and environmental zoospore degradation rates are influential parameters. Calculation of the basic reproductive number highlights the invasion potential of this pathogen and was used to determine that direct transmission contact was the dominant transmission pathway for small population densities, while environmental transmission dominated in large populations. Collectively, these results suggest strategies that reduce host contacts at small densities or reduce the environmental persistence of zoospores at high host densities may be effective Bsal management strategies. (Received February 28, 2020)