

1096-92-2458

Eric Alan Eager* (eeager@uwlax.edu), 1725 State Street, La Crosse, WI 54601, and **Anita Davelos Baines** and **Andrew M. Jarosz**. *Modeling and Analysis of Fungus-Infected American Chestnut Populations*.

Chestnut blight is a classic example of how introduced pathogens can alter host population biology and overall plant community dynamics. The blight pathogen *Cryphonectria parasitica*, introduced throughout the American chestnut populations in the 1900s, has caused a rapid, large-scale die-off of this important tree species throughout much of the United States. Only the introduction of an intracellular hyperparasite of *C. parasitica* has been able to halt the expansion of the fungus-infected cankers that eventually kill the chestnut trees, but the long-term robustness of this recovery is still an open ecological question.

We developed structured population models to assess how changes in fungus and hypovirus infection influence the short and long-term population dynamics of American chestnut trees in the Upper Peninsula of Michigan, and use the results of these models to provide conservation suggestions. Specifically, we show that hypovirus introduction can cause a significant 50-year transient amplification followed by (previously unexpected) asymptotical population decline. This suggests that hypovirus introduction alone is not sufficient to save the American chestnut population. (Received September 17, 2013)