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**Qihua Huang** and **Hao Wang\*** (hao8@ualberta.ca), CAB 539, University of Alberta, Edmonton, Alberta T6G 2G1, Canada, and **Mark A. Lewis**. *The impact of environmental toxins on predator–prey dynamics*.

To study the impact of environmental toxins on food web, we construct a toxin-mediated predator-prey model that combines both direct and indirect toxic effects on two trophic levels. This work investigates how the balance of the classical predator-prey dynamics changes as a function of environmental toxin levels. While high toxin concentrations are shown to be harmful to both species, possibly leading to extirpation of both species, intermediate toxin concentrations may affect predators disproportionately through biomagnification, leading to reduced abundance of predators and increased abundance of the prey. This counterintuitive effect significantly increases biomass at the lower trophic level. Environmental toxins may also reduce population variability by preventing populations from fluctuating around a coexistence equilibrium. Finally, environmental toxins may induce bistability. Since our toxin-mediated predator–prey model is general, the theory developed here not only provides a foundation for population or community effects of toxicity, but also could help develop management policies to preserve and restore the integrity of contaminated habitats. (Received August 29, 2015)