THE EFFECT OF AN ACIDIC ENVIRONMENT ON MORTALITY, NATURAL DEFENSE MECHANISMS AND STANDARD METABOLISM OF ADULT NORTHERN LEOPARD FROGS (*Rana pipiens*). I. Vatnick, M. Brodkin, and M. Simon. Biology Department, Widener University, One University Place, Chester, PA, 19013. 

The decline in frog populations is a well-recognized worldwide phenomenon. *Rana pipiens* are disappearing from many habitats where they used to flourish. Environmental acidification has been considered as a possible contributor to this disappearance. Our data indicate that adult *Rana pipiens* are sensitive to acidic environments and exhibit over 60% mortality within 10 days of exposure to pH 5.5. Furthermore, exposure to mild acidic conditions affects their natural defense mechanisms. Acidic pH led to colonization of the spleen with Gram negative bacteria and a reduction in splenic white blood cell number and viability. We present a theoretical model of the effects of acid exposure on natural resistance and mortality of adult *Rana pipiens*. The metabolic response of frogs exposed to pH 5.5 was similar to that of frogs held at pH 7.0. Whole body metabolism may not be an appropriate measure of the physiological responses of *Rana pipiens* to acidification.