



QSB SEMINAR SERIES 291

From Silent Spring to Silent Night: A Tale of Toads and Men

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Date: 2/1/19

Time: 1:30 PM

Location: SSB 130

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ABSTRACT

The herbicide, atrazine is a potent endocrine disrupter that chemically castrates and feminizes exposed male amphibians. Further, atrazine exposure results in neural damage and hyperactivity and induces a hormonal stress response that leads to retarded growth and development, and immune suppression. The immune suppression results in increased disease rates and mortality. Though many factors likely contribute to amphibian declines, pesticides (such as atrazine) likely play an important role even in populations that appear to decline for other reasons, such as disease. Pesticides like atrazine are ubiquitous, persistent contaminants and, though more pronounced in amphibians, the effects described above occur in all vertebrate classes (fish, amphibians, reptiles, and mammals) examined, via common mechanisms. These observations demonstrate the critical impact that pesticides have on environmental health. Furthermore, reproductive cancers and birth defects associated with exposure to many of these same chemicals (e.g. atrazine) via identical mechanisms demonstrate that the impact on environmental health is an indicator of a negative impact on public health. Many of these mechanisms are being revealed only now in the scientific literature and agencies are just now beginning to deal with this emergent science and translate it efficiently into health-protective policies. In particular, ethnic minorities and lower socio-economic communities are at risk: More likely to live in contaminated communities, work in occupations that increase hazard exposure and less likely to have educational and healthcare access. Given the importance of this science and relevance to public health, there is a strong need to translate this information and provide public access to this knowledge. Command of the science and active involvement by the public in policy decisions is vital.