Pesticide exposure and effect in amphibians using agricultural habitat, South Okanagan, British Columbia

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Many species of amphibians are the subject of serious conservation concern in Canada and elsewhere due to habitat loss and exposure to other anthropogenic stressors especially pesticide exposure. The Okanagan valley in BC is an intensive agricultural area where 80% of the natural wetlands and riparian areas have been developed. Yet due to the southerly location of this area, it also supports abundant and diverse amphibian populations that are known to use ponds and irrigated areas in agricultural lands. In the Okanagan valley, nationally endangered species (Tiger Salamander, *Ambystoma tigrinum*), threatened species (Great Basin Spade Foot Toad, *Spea intermontana*), and species of special concern (Western Toad *Bufo boreas*) still occur. Furthermore, the Northern Leopard Frog (*Rana pipiens*) has been extirpated from the South Okanagan for no known reason. Due to the presence of many rare species and the high potential for exposure to pesticides and the lack of natural habitat, it is necessary to assess the risk of amphibian populations to the impact of pesticides. In 2003, 15 conventional and nine organic farming ponds were surveyed for breeding adults and larval productivity to determine relative amphibian population densities. Habitat assessment, water chemistry, and sediment sampling was conducted at each site. All moribund and road-killed amphibians found in agricultural areas are to be analyzed for pesticides.