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TITLE: Effects of low concentrations of forest-use pesticides on frog embryos and tadpoles.

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SOURCE: ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY; 13 (4). 1994. 657-664.

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ABSTRACT: BIOSIS COPYRIGHT: BIOL ABS. Management of coniferous forests of eastern Canada may involve spraying with the insecticide fenitrothion and the herbicides triclopyr and hexazinone. Because ranid frogs breed in ponds that are unavoidably contaminated by spraying, we measured the toxicity of these chemicals to embryos and tadpoles of Rana pipiens (leopard frog), Rana clamitans (green frog), and Rana catesbeiana (bullfrog) under lab conditions. Embryos were exposed during late neurula stage and tadpoles within 48 h after hatching to fenitrothion (24 h; 0.5-8.0 ppm), triclopyr (48 h; 0.6-4.8 ppm), and hexazinone (8 d; 100 ppm). We measured hatching success of embryos, and for tadpoles, mortality, ability to swim away when prodded, and total body length one week after exposure. Hexazinone had no effects on embryos or tadpoles, even at the unreasonably high levels to which they were exposed. Hatching success of embryos and subsequent avoidance behavior were unaffected in all species by exposures to triclopyr and fenitrothion. Newly hatched tadpoles of all species were very sensitive to 2.4 and 4.8 ppm triclopyr and to 4.0 and 8.0 ppm fenitrothion, either dying or remaining paralyzed following exposure. Tadpoles initially affected by exposure to lower concentrations of fenitrothion or triclopyr usually recovered within 1 to 3 d. Bullfrog and green frog tadpoles appear to be more sensitive than leopard frog tadpoles, and bullfrog tadpoles were consistently more sensitive than green frog tadpoles.

MAIN MESH HEADINGS: ENVIRONMENTAL POLLUTANTS/*POISONING
*OCCUPATIONAL DISEASES

**ADDITIONAL
MESH
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**ECOLOGY
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**CAS REGISTRY
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Ecology; Environmental Biology-Limnology
Biochemical Studies-General
Pathology, General and Miscellaneous-Necrosis (1971-)
Nervous System-Pathology
Toxicology-Environmental and Industrial Toxicology
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