Effects of Herbicides on Amphibians

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What are herbicides?
Herbicides are chemicals used to kill unwanted plants.
Used on small scale operations, but used on a much larger scale agricultural operations.
Runoff into water sources causes negative health effects on amphibians.
Two major chemical classes of herbicides that affect amphibians:
- Amino Acid Inhibitors (Glyphosphates)
- Photosynthesis Inhibitors (Atrazine)

Classification of Herbicides
Contact Herbicides: Only kill parts of the plant that come in contact with the chemicals.
Systemic Herbicides: Chemicals are absorbed into the plant through foliage or the root system, then spread throughout the plant.
Selective: Kill only specific weeds and do not harm other plants.
Non selective: Kill all plants in the area applied.
Atrazine
Most commonly used herbicide in the U.S.
Causes hermaphroditism in frogs
Photosynthesis inhibitor
Found in ground, surface, and drinking water

Feminization of Male Frogs
https://www.youtube.com/watch?v=nBbkwlGM7X0
Atrazine is known to cause male frogs to grow female reproductive organs
Male frogs that undergo this hermaphroditism can even produce clutches of eggs

Glyphosphate
First used in 1974
One of the most used herbicides in the United States
750 products for sale in U.S. containing glyphosphate
Roundup
Binds tightly with soil
Evidence

Rick A. Relyea

Created a pond habitat which had three different soil types, and contained three different North American Tadpole species.

Roundup

3 weeks later

96-100% aquatic larvae killed

Also experimented with Roundup on juveniles.

References


References Continued


https://www.google.com/search?q=roundup+ad+amphibians&source=lnms&tbm=isch&sa=X&ved=0ahUKEwj7_ofW7b3TAhUQ0WMKHX67CbUQ_AUIBygC&biw=1696&bih=834#tbm=isch&q=glyphosate+use+map&imgrc=6LMB3YbRmxL1rM