

Frogs' genes adapt quickly to chemical threats in environment

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Several species of frogs can quickly switch on genetic resistance to a group of commonly used pesticides. In one case, wood frogs (*Lithobates sylvaticus*) were able to deploy such defences in just one generation after exposure to contaminated environments, scientists reported last week at a conference of the Ecological Society of America in Baltimore, Maryland.

This is the first-known example of a vertebrate species developing pesticide resistance through a process called phenotypic plasticity, in which the expression of some genes changes in response to environmental pressure. It does not involve changes to the genes themselves, which often take many generations to evolve.

The frogs' speedy response raises hope for amphibian species, of which one-third are threatened or extinct, says Rick Relyea, an ecologist at the Rensselaer Polytechnic Institute in Troy, New York, and the team's leader.

"Frogs can evolve much faster than we thought," says Andrew Blaustein, an amphibian ecologist at Oregon State University in Corvallis. "It is possible these stunning findings could have some practical value for conservation but the situation is complex. There is a cocktail of problems."

Some of the team's latest published research shows that *L. sylvaticus* individuals living close to contaminated farmland evolve to permanently express the resistance after natural selection favours the "switched-on" phenotype, in a process known as genetic assimilation. In contrast, populations inhabiting pesticide-free land show their tolerance only after exposure to low levels of the chemicals.

Read full, original post: [Frogs mount speedy defense against pesticide threat](#)