

Is pesticide exposure reducing amphibian populations?

August 21 2015, by Jacob Frese

There have been noticeable population declines in both reptiles and amphibians because of habitat destruction and disease. In addition to immune-suppressing insecticides, the fungal pathogen, *Batrachochytrium dendrobatidis*, continues to invade the natural environment of amphibians and cause widespread disease. A study was conducted to test if the development and survival of Gray Treefrogs would be influenced by *B. dendrobatidis*, malathion (an insecticide), or a combination of both.

The researchers of an article published in the journal *Herpetologica* raised Gray Treefrogs from eggs to determine at which larval stage they are affected by *B. dendrobatidis* and/or malathion. They hypothesized that (1) survival, mass, and time to metamorphosis of the larvae would all be negatively affected by [exposure](#) to malathion and *B. dendrobatidis*; (2) there would be more negative effects with *B. dendrobatidis* exposure at metamorphosis compared to other subadult periods; and (3) exposure to malathion would increase the impact of *B. dendrobatidis* during all developmental periods.

The researchers monitored the Gray Treefrogs for 28 days. At 1 week, 3 weeks, and at the time of metamorphosis, frogs were exposed to *B. dendrobatidis* alone or in combination with malathion. The researchers documented the larval frogs' growth rate, time to metamorphosis, mass at metamorphosis, and time until the tail was completely absorbed. This data was compared to that of healthy Gray Treefrogs.

The results demonstrated that survival rates were not affected by either malathion or *B. dendrobatidis*. Malathion caused negative effects at [metamorphosis](#), however, that persisted into the frogs' terrestrial phase. On the other hand, *B. dendrobatidis* did not have a negative effect on the larval growth rate, nor did malathion exposure appear to increase the frogs' vulnerability to fungal disease following exposure to *B. dendrobatidis*.

The researchers concluded that Gray Treefrogs exposed to insecticides during larval stages do not have a greater risk of disease as a result of exposure to the fungus *B. dendrobatidis*.

More information: "How Time of Exposure to the Amphibian Chytrid Fungus Affects *Hyla chrysoscelis* in the Presence of an Insecticide." *Herpetologica*: September 2015, Vol. 71, No. 3, pp. 169-176. doi: [dx.doi.org/10.1655/HERPETOLOGICA-D-13-00070](https://doi.org/10.1655/HERPETOLOGICA-D-13-00070)

Provided by Allen Press

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