

## THE ISSUE

*What are they? What is the problem?*

Rodenticides, also known as rat poisons, are sets of chemicals used by people to kill pest species, such as rats or house mice.

While many rodenticides are exceedingly cruel, an equally crucial issue stems from the secondary, unintended effects of these poisons: killing wildlife.

Vast numbers of wildlife animals, such as hawks, owls, foxes, and wildcats, are accumulating rodent poisons in their blood, their livers, and their fat. People use rodenticides as a fast, easy way to kill pest animals—but death is typically slow and painful.

Because it takes multiple days for the poisoned animal to die, and they are often very weak before death, they are more likely to be eaten by predators like hawks or owls. These predators accumulate the residual poisons over time, and eventually die.

In 2011, a study by Dr. Maureen Murray, published in the *Journal of Zoo and Wildlife Medicine*, showed that rodenticide residues had been found in at least 86% of 161 predatory birds tested over a five-year period. Another study published in 2013 by the Department of Pesticide Regulation analyzed 492 non-target species, including predatory mammals and birds, and found that at least 75% of them had rodenticide residues in their livers.

## HUMANE PEST CONTROL

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## RODENTICIDES



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*And Their Effect on Wildlife*



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## BASIC TYPES

### *Anticoagulants*

Anticoagulants, a common rodenticide, cause an inability to form blood clots, which then leads to internal bleeding, inability to exercise, lethargy, coughing, difficulty breathing, weakness, vomiting, diarrhea, nose bleeds, bruising, bloody urine, swollen joints, and/or death. While there is an antidote, it must be administered over a period of weeks to be effective.

### *Cholecalciferol*

Cholecalciferol, better known as activated vitamin D3, raises calcium and phosphorus levels in the body so much that severe, acute kidney failure results. Poisoning is slow, and results in increased thirst and urination, decreased appetite, lethargy, weakness, kidney failure, and eventual death. There is no antidote.

## Long-Term Effects on Wildlife

Wildlife can be affected by rodenticides in two ways: by directly ingesting the poison or by ingesting it secondhand (e.g., when a predator, such as a hawk, owl, or fox consumes a poisoned animal, such as a rabbit or squirrel).

While a lethal dose of rodenticides leads directly to death, even sub-lethal doses can cause death in a multitude of ways.

The effects of the four main types of rodenticides are described to the left and right; these effects occur in all animals, pest species or not. Often, animals become so weak from rodenticide poisoning that it is difficult to hunt, defend themselves, or deal with the stresses of living in the wild. In other cases, as with anticoagulant poisoning, even small scratches become lethal because the poisoned creature's blood cannot clot.

Thus, the effects of rodenticides on wildlife are more pronounced than statistics suggest, given that wildlife deaths result not only from lethal amounts of rodenticides, but from sub-lethal doses as well.

## BASIC TYPES

### *Bromethalin*

Bromethalin, another very popular rodenticide, leads to swelling of the brain, which in turn causes ataxia (loss of coordination), tremors, seizures, paralysis, and death. There is no antidote.

### *Phosphides*

Small amounts of phosphides, when ingested and mixed with stomach acid, produce deadly amounts of toxic phosphine gas. Effects of phosphide poisoning include nausea, drooling, stomach bloating, lung damage, seizures, liver damage, collapse, shock, vomiting, lung damage, and death. There is no antidote.