# Update - Risks to Raptors from Anticoagulant Rodenticides

## by Scott Thomas

In the 2010 May issue of the Tattler, Scott Thomas and the Conservation Committee presented an article about our then growing concerns of potentially serious impacts to raptors from anticoagulant rodenticides (Rat Poison Kills Hawks). Since then a mountain of data and scientific papers have surfaced that leave little doubt about the alarming and significant impacts of secondary poisoning from anticoagulant/rodenticides to raptors, mammalian predators, and even pets.

Based on our own local research, combined with results from studies across the nation, the evidence is clear that the secondary exposure to raptors is wide spread, fatal and may be an even worse problem than we originally imagined. So it seems like a good time to go over anticoagulant/rodenticides again, talk about some of the problems to raptors, and talk a little bit about what we are planning to do to help address the issue.

Anticoagulant/rodenticides (ARs) inhibit the ability of an animal's blood to clot properly, causing uncontrolled bleeding or hemorrhaging. This is accomplished through a reduction in the intake of certain forms of vitamin K which are essential to the clotting process. Essentially, ARs cause an over accumulation of inactive forms of the vitamin which in turn reduces the intact of crucial, active forms of Vitamin K. Hemorrhaging of internal organs leads to severe illness and in most cases death.

ARs have been around for a long time. Warafin and other similar anticoagulants were first introduced in the 1940s and 1950s and are considered first generation anticoagulant rodenticides (FGARs). But as rodent populations became resistant to the early FGARs, newer (second generation) forms of ARs were introduced, classified as second generation anticoagulant rodenticides (SGARs), which include brodifacoum, bromadiolone, difenacoum, and difethialone.

SGARs are more much more potent and consequently more dangerous to raptors as a source of secondary poisoning. Their use has become very commonplace in almost every sector of urban and suburban environments where there is a pervasive, wide-spread but incorrect belief, that these poisons are not dangerous.

Although birds are not the target species and rarely ingest SGARs directly, raptors suffer from high rates of secondary poisoning. Because it usually takes multiple doses of SGARs and at least a short period of time (days to weeks) for SGAR exposure to kill rodents, those rodents that are sick and/or dying from SGAR poisoning are perfect prey targets for predators including raptors. When poisoned rodents (still alive or recently deceased) are ingested by a predator the result is secondary poisoning that is almost as harmful and lethal depending upon the dosage and other factors.

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Studies across the country have identified SGAR exposure in raptors in almost all North American raptor species. Locally we have conducted laboratory testing and necropsies on a small number of dead raptors and they almost all tested positive for SGARs. In fact in most cases, SGARs were confirmed as the cause of death. Last year we analyzed blood samples drawn from nestling raptors from a handful of Orange County nest sites and found evidence of exposure in hawk and owl nestlings. This is especially alarming when you consider that these birds, less than 6 weeks of age, have not had that much time to have been exposed, which suggests that a high rate of SGARs are present in prey items around the county.

In the coming year, the Raptor Research Committee will be joining an effort with Peter Bloom and Bloom Research, and the Western University of Health Sciences, to launch a study aimed at identifying and mapping SGAR exposure in selected raptor species in Orange County.

The Conservation Committee is taking steps to support efforts such as the Safe Rodent Control Coalition and will be submitting comments to the California Department of Pesticide Regulation to support proposed changes in regulations that would make it harder to over-use and misuse SGARs.

We can use everyone's help spreading information about the impacts of SGARs to raptors and support for Audubon and other group's efforts to further understand the issue and seek alternative pest control methods.