

“SILENT SPRING” REVISITED



Article by **Ron Klataske**

It is as if “SILENT SPRING” and the lessons of DDT were irrelevant, as now EPA’s “Office of Pesticide Programs” disregards concerns for wildlife.

In 1962, exactly 50 years ago, Rachel Carson had just finished writing a book called “Silent Spring” which detailed pesticide usage in the 1930s, ‘40s and ‘50s and the impacts thereof. In particular, the book drove home the point that the insecticide DDT was impacting humans and wildlife far beyond the originally targeted insects. Her book began awakening the nation to the unintended consequences of broad-scale pesticide applications that indiscriminately kill wildlife. “Silent Spring” spoke to the myriad of problems that occur when natural food chains are contaminated and/or disrupted by alien chemicals. She noted how it often took years or decades to comprehend that plummeting populations of one animal could be traced back to pesticide or chemical applications made – with good intentions – much earlier in time.

The realization that pesticide applications can ripple through natural ecosystems and cause unintended consequences elsewhere, was new to most of the scientific community and the public. The unavoidable truth was that DDT was causing eagle, falcon and other raptor populations to plummet by causing thinning of raptor eggshells, which in turn prevented raptors from fledging young birds.

That seminal book was in no small way responsible for an entire generation of Americans becoming aware of pesticide issues and developing an appreciation for how easy it can be to disrupt natural functions. It ultimately also played an important role in the formation of the federal government agency that Congress authorized to oversee pesticide usage to ensure protection of human and ecological health.

That agency, we know today as the Environmental Protection Agency or the EPA. It remains the lead agency to oversee risk assessment, regulation and appropriate use of pesticides to prevent future adverse impacts on human and ecological (fish and wildlife) health.

To be sure, EPA has many roles beyond regulating the labeling and use of pesticides, but the Office of Pesticide Programs within EPA is charged with riding herd on that industry, and it is a big job indeed. Unfortunately, as is sometimes the case, it appears that over time some within that section have become overly cozy with the very entities they are charged with regulating, and lax in the challenging task that EPA is charged with – protecting the environment. During the Clinton Administration, Vice President Al Gore implemented an across-the-government directive to adopt “Total Quality Management” with the objective being to “satisfy the customer.” Unfortunately, EPA’s Office of Pesticide Programs’ actions indicate that the customer is the manufacturer, rather than the environment or the public interest.

Today one has to wonder if pesticide manufacturers, with the assistance of

In the photos above: a beautiful, but emaciated, Ferruginous Hawk found unable to fly in a field in Logan County, Kansas in 2008. This is the expected destiny for raptors that are poisoned with levels of anticoagulants that impair their ability to hunt or withstand the elements. Even with the best of veterinary care available, it soon died. Most raptors die in the landscape, unrecorded. One Logan County rancher counted 17 dead hawks in one winter season. – Photos by Gregory Stempien.

“hired help” in various capacities, lobbyists and political supporters, have been able to circumvent safeguards and regulations. Some well-informed pesticide program observers have suggested that well-placed administrative personnel regard the agency as the “gateway to market” and are said to keep the dedicated, science-based employees at bay. If this is the case the agency has become so politically diverted or distracted by other issues that it has forgotten its core responsibilities. It is as if “Silent Spring” and the lessons of DDT are irrelevant as EPA’s Office of Pesticide Programs methodically green lights pesticide after pesticide without due diligence, thereby setting up potential ecological train wrecks that aspiring authors can reveal in future “Silent Spring” sequels.

Recent examples include EPA’s rushed efforts to get additional prairie dog-control

rodenticides on the market. It didn’t seem to matter that there were already a variety of rodenticide products labeled for and effective in killing this burrow-dwelling denizen of the Great Plains. Black-tailed Prairie Dogs have long been a symbol of the shortgrass and midgrass prairies and are a “keystone species” because so many other wildlife species depend on or derive benefit from their presence and colonies. They are also a widely-hated species by many ranchers who view them as competing for forage that would otherwise be consumed by livestock and/or negatively impacting the rangelands. Consequently, various poisons have been concocted since the early 1900s to destroy prairie dogs. However, in the 1960s, after decades of various poisons being used to kill them, there was a push to move toward rodenticides that wouldn’t secondarily poison the next animal in the food chain that might consume a poisoned prairie dog. New poisons were developed that would efficiently kill prairie dogs but wouldn’t poison the raptors or mammalian predators (such as Swift Foxes, Black-footed Ferrets and

Badgers) that are typically associated with prairie-dog colonies—and would therefore encounter poisoned prairie dogs.

During the 1960s and ‘70s various chemicals were evaluated for possible prairie-dog control and many were dismissed for one reason or another. A notable line of potential products called anticoagulants, due to their ability to thin blood, were evaluated. If enough of the anticoagulant is consumed, the animal can completely bleed out – either internally or externally. However, it can take from one to four weeks for prairie dogs to bleed out and die after consuming an anticoagulant. Two of the anticoagulants, Chlorophacinone and Diphacinone, were evaluated and found to have the ability to kill prairie dogs. However, due to the chemicals’ slow-acting nature and persistence within the prairie dog, those early tests determined the chemicals wouldn’t make good prairie-dog poisons because of the secondary poisoning hazard to non-target animals. Other products, most notably zinc phosphide, were developed and thus filled the niche demanded by landowners for an effective prairie-dog rodenticide.

Since the 1990s, chemical manufacturers wanting to boost sales of anticoagulant-based products renewed their quest to promote anticoagulants as prairie-dog rodenticides. They apparently thought they needed the assistance of an Extension Service research program with a land-grant college. These colleges are often hungry for funds,



2005 photos of dead and dying prairie dogs approximately twelve days after an (illegal) application of Rozol® on a S.D. colony prior to EPA approval in that state. More than fifty were observed over an area of about 160 acres with hundreds more picked up over the course of several weeks. In spite of this type of evidence on the extended dying process and high risk of secondary poisoning, EPA has now made Rozol® (and Kaput-D®) available in ten states.

– USFWS law enforcement division photos.



If history repeats itself, and the unexpected always happens, how incapable must Man be of learning from experience. – George Bernard Shaw



One of two Bald Eagles found that succumbed to chlorophacinone poisoning in Nebraska. – USFWS

which are provided by industry to finance field studies on the efficacy of chemicals designed to kill insects or other pests, or “weeds and brush” (everything that is not grass in pastures and on roadsides). This template has been a pathway to registration used many times in the past. If all goes according to plan, this partnership gives pesticide/herbicide manufacturers something akin to a university’s “good housekeeping seal of approval,” and sometimes they acquire the principal investigator as a consultant to help advocate either officially or unofficially for the product.

That proved to be the case with Rozol® Prairie Dog Bait. Sadly, officials in Kansas became the enablers. Field trials conducted under the auspices of the KSU Research and Extension Service by the wildlife specialist determined that this anticoagulant was lethal to a large majority of prairie dogs in a treated colony – exactly what Liphatech wanted for marketing purposes.

But, the negative ecological impacts were not thoroughly studied prior to a rush to get Rozol® labeled for sale and use. It was left to others to try to contend with all of the collateral damage that has and is occurring. As to be expected, a lot of the dead and dying prairie dogs end up on the surface, which obviously poses hazards to predators and scavengers, including raptors. Ferruginous Hawks and Golden Eagle are just two among many victims. Due to eradication of prairie dogs and other food sources, poisoning and shooting, these two magnificent raptors are now plunging toward extinction as breeding species in Kansas, with a further toll taken on migrants.

A concept, or more aptly a ruse, was put forth that prairie-dog poisoners, in conjunction with the landowners or managers, would retrieve (and bury) the poisoned prairie dogs before other animals could consume them. Only a naïve fool would believe there to be the interest and/or time available by the people poisoning prairie dogs to return to a colony dozens of times to collect dead and

dying prairie dogs. In addition, finding the poisoned prairie dogs in diverse vegetation and terrain is a challenge, and to do it effectively one would have to collect them early each day prior to the hunting of raptors and late each day prior to the hunting of nocturnal mammalian predators. Badgers, Swift Foxes and Black-footed Ferrets further complicate their exposure to secondary poisoning by entering or digging up burrows to consume dead and dying prairie dogs.

Enter the EPA Office of Pesticide Programs: with all the gullibility you’d expect from out-of-touch and/or disinterested Washington bureaucrats, somebody in that office was eager to believe that pesticide applicators would continually return to poisoned prairie-dog colonies for weeks to retrieve dead prairie dogs. Other federal biologists pointed out to EPA staff in that office that during the one-to-four weeks that prairie dogs in a colony are bleeding out, after consuming the anticoagulant poison, there are live – but progressively debilitated – prairie dogs that also pose a hazard to whatever might consume them. EPA needed a remedy for that dilemma. The chemical manufacturers suggested, and EPA was quick to agree, that adjusting the chemical label to include retrieval and disposal of even the moribund (live) prairie dogs along with the dead prairie dogs would thus solve the secondary poisoning issue. One wonders if EPA could really be that easy to fool? It turns out the answer is an embarrassing, yes.

Obtaining approval for the use of Rozol® first occurred in Kansas in 2005 and proved to be an easy task. The Kansas

Department of Agriculture applied to EPA for approval for use in the state under Section 24(c) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), a Special Local Needs (SLN) provision. With funds funneled through KSU and directly to the staff member for follow-up consulting services, the ground was already plowed for Liphatech in this state. The salary for the wildlife extension specialist is partially funded by the Kansas Department of Wildlife and Parks, so in essence the agency’s endorsement was implied along with that of KSU. That may have been the reason it was overlooked at the time by U.S. Fish and Wildlife Service (USFWS) staff in Kansas.

An “SLN” is supposed to be based on an existing or imminent pest problem within a state for which the state lead agency, based upon satisfactory supporting information, has determined that an appropriate federally registered pesticide product is not sufficiently available. First, as previously noted, there were and are other effective rodenticides available without the secondary poisoning issues.

Second, EPA originally requested consultation with USFWS on chlorophacinone (Rozol®) and diphacinone (Kaput-D®) in 1991. USFWS issued a biological opinion in March of 1993, identifying concerns with the use of chlorophacinone for specific rodent-control activities and that this use would jeopardize the continued existence of 21 listed species (at that time). The use of chlorophacinone for prairie dog control was not included as a use in this consultation and thus not evaluated with new future uses expected to undergo their own section 7 consultation. Under Section 3 of FIFRA, consultation with USFWS must be conducted for any new use.

Nebraska was the next target for Liphatech, the manufacturer of Rozol®. In the spring of 2006 the company asked the state’s pesticide board to approve this toxicant for statewide use under the second “Special Local Needs” request. Biologists with the U.S. Fish and Wildlife Service office in Nebraska and the Nebraska Game and Parks Commission opposed the request. However, the

wildlife extension agent from Kansas was there on behalf of the manufacturer to urge approval, and he also recruited and convinced his Nebraska extension counterpart to add another voice to Liphatech's request. State pesticide boards are comprised principally of folks involved in the industry as applicators or agricultural users. They are not expected to be ecologists; EPA should fulfill that function as a backstop. Approval was granted and EPA took no action to disapprove, possibly in part because they had already opened the gate to marketing and use in Kansas.

Liphatech printed thousands of promotional brochures with testimonials espousing the high efficacy of Rozol® in Kansas and had them placed in extension offices and farm stores throughout the west. The ten-page publication is fraught with misleading statements, and omissions. It makes no mention of the fact that the label requires removal of dead prairie dogs or that there is a substantial risk of secondary poisoning. In contrast, it states on the cover that Rozol® use is "With less effort and less risk to non-targets." That statement targets competition from Zinc Phosphide Prairie Dog Bait, a toxicant that does not present nearly as much risk of secondary poisoning, but does involve the added work of pre-baiting with untreated oats. The implication is that if one overlooks the need to remove dead prairie dogs, one can poison the colony with Rozol® in one pass and move on. In fact, a sales representative for Liphatech suggested at a Logan County Commission meeting in 2006 that people shouldn't need to worry about picking up dead prairie dogs. Subsequent label changes now indicate even live prairie dogs are to be retrieved.

The floodgates were opened and within the next couple of years, semi loads of Rozol® were being delivered throughout western Kansas, and other Great Plains states that followed suit and received Special Local Needs approval from EPA. Logan County Kansas officials alone purchased 46 tons of Rozol® in 2008 as part of their attempt to force every landowner in that county to eradicate prairie dogs.

By August 2008 the Western Association of Fish & Wildlife Agencies (WAFWA) wrote to EPA urging the agency to "rescind any existing permits" (for Rozol® and Kaput-D®) and immediately suspend issuing any more permits. The U.S. Fish and Wildlife Service sent similar letters. The concern was that the widespread use of the anticoagulants was resulting in the deaths of unknown numbers of "non-target-wildlife species". The EPA Office of Pesticide Programs acts as if it could care less about the need to consult with the USFWS, even on endangered species, and concerns expressed about migratory birds seem to fall on deaf ears. The biological opinion drafted by

USFWS in April of 2012 emphasized that the measures included to protect listed species are inadequate for protecting raptors and that unpermitted take of eagles and other migratory birds are expected to continue despite current Rozol® use restrictions.

With official comment letters and litigation, Audubon of Kansas has partnered with Defenders of Wildlife (which has provided legal expertise and leadership in Washington D.C.) and the American Bird Conservancy to try to persuade EPA to address the ecological risks of these poisons and the concerns expressed by WAFWA and USFWS.

Anticoagulant poisoning of raptors can start them on a debilitating spiral towards death. The poison may not kill them directly or immediately; however, the anticoagulant toll on body condition – and the ability of these precision athletes to capture elusive prey – more likely renders them incapable of surviving in the wild and/or successfully reproducing and rearing young. Scientists



Note that the cover states that Rozol® use is "With less effort and less risk to non-targets."



THE GRASSLAND RAPTOR IN GREATEST JEOPARDY

The Ferruginous Hawk, perhaps more than any other raptor, is an indicator of the health of grassland and shrub-steppe ecosystems. Because the species is a small-mammal specialist, the presence of ground squirrels,

prairie dogs, pocket gophers, hares, and rabbits has historically been correlated with stable hawk populations. The loss of these prey species from control and eradication programs, and the potential effects of secondary poisoning from rodenticides are especially concerning because they occur not only within Ferruginous Hawk breeding ranges, but where the continental population of Ferruginous Hawks congregate to forage.

After breeding, Ferruginous Hawks east and west of the Continental Divide arrive in large numbers in the northern plains to feed on Richardson's Ground Squirrels, and in winter many of these hawks migrate to the southern and central Great Plains to Black-tailed Prairie Dog colonies. On these same ranges Ferruginous Hawks are experiencing other stressors including wind turbines, new residential development, conversion of native habitat, exposure to West Nile Virus, electrocution, and poaching, that either result in direct mortality or displacement from these traditional habitats. Additionally, Ferruginous Hawks do not compete well with Red-tailed Hawks where habitat is altered, and the result is that Ferruginous Hawks are being forced into smaller native ranges that are often of increasingly poorer quality.

The Ferruginous Hawk is listed as Threatened in Canada, a Species of Conservation Concern in the United States, and a Species of Concern in Mexico. The status of Ferruginous Hawks in the U.S. has been shrouded with uncertainty through the years because of presumed widespread nomadism of the species that makes determination of its breeding population status difficult. This was a factor in the U.S. Fish and Wildlife Service decision to not formally list the species as threatened or endangered in 1992. However, recent migration studies of adult and juvenile Ferruginous Hawks failed to find nomadism among any range-wide breeding populations (www.ferruginoushawk.org).

From a regional perspective, the species is listed as Threatened, Endangered, or Imperiled in 7 northern states or provinces in the American west, including a 2009 Endangered listing in Alberta, one of the two historic nesting strongholds for the species. Nine western states identify the Ferruginous Hawk as a species of concern. Widespread concerns from federal, state and provincial listings warrant monitoring of hawk populations and point to the need for further review of the Ferruginous Hawk as a federal candidate for T/E species listing in the U.S.

— James W. Watson (WDFW)

Jim Watson is a Wildlife Research Scientist with the Washington Department of Fish and Wildlife, specializing in raptor studies. His raptor investigations span 40 years, including a 10-year international study of Ferruginous Hawk migration, and current studies on wind turbine/raptor interactions.



The remains of prairie dogs in this nest in Oklahoma attest to the importance of this prey. The hawk pictured above is eating a ground squirrel.

with the U.S. Geological Survey Patuxent Wildlife Research Center have demonstrated that the standardized avian acute oral toxicity test, used by EPA to generate risk assessments for the rodenticides such as chlorophacinone and diphacinone, underestimate the real-world hazards to wild raptors. Recommendations to correct the limitations of the *standardized acute oral toxicity test methodology* have resulted in stonewalling by EPA, and if officially proposed will likely cause pesticide lobbyists and their political allies to "howl" louder than coyotes on steroids.

Tragically, the EPA Office of Pesticide Programs has for the 2012 prairie dog poisoning season (October to April) authorized two anticoagulant rodenticides for the purpose of killing prairie dogs under the trade names Rozol® and Kaput-D®. Looking forward, we can expect the skies of the Great Plains to be increasingly empty, especially of Ferruginous Hawks and Golden Eagles, and the remaining shortgrass prairies to be less accommodating for Swift Foxes and Black-footed Ferrets.

Once EPA gives a green light for use of a toxicant, even though they haven't adequately considered the risks or consulted with the USFWS, it is difficult to pull it out of distribution. It becomes hugely profitable for companies to later disregard EPA risk-mitigation decisions. Industry attorneys and lobbyists force the agency into years of administrative processes and litigation prior to removal of the pesticides in question, if it ever comes. Once something is registered it takes a Herculean effort to get it removed. This was particularly evident with carbofuran, an insecticide that resulted in millions of bird kills annually prior to the 2009 restrictions on most uses in granular form. Carbofuran also causes neurological damage in humans.

EPA's Office of Pesticide Programs handling of registration of rodenticides that pose substantial secondary-poisoning risks to other wildlife, especially imperiled species, is bad precedent unworthy of an agency with such noble beginnings rooted in a book called "Silent Spring". Americans and our continent's wildlife resources deserve better stewardship.