



MN Raptor center due to severe neurological problems and high lead levels in the blood this eagle was euthanized.

Deadly Lead

This past week I got a distressing call from a woman in Port Norris whose friend had discovered a bald eagle on a dike along the NJ Delaware Bayshore. The eagle was unable to fly. A lot of territorial battles take place between these majestic birds, and one presumption was that it might have been injured in an altercation, so people were on the lookout for a second eagle. I suggested that the described behavior might be indicative of lead poisoning.

Let's back up a bit to the famous book of 1962, *Silent Spring*, in which Rachel Carson, a marine biologist and conservationist, focused on the harmful

effects of pesticides in our environment. Her revelations led to the eventual banning of DDT, a chemical used to kill disease-carrying mosquitos. She related that birds like osprey and eagles were on the brink of extinction because the effects of DDT caused the crushing of their soft-shelled eggs during incubation, as well as general infertility. This link between reproductive failure and DDT affects humans, too. Like birds of prey, we are at the top of our food pyramid.

When a prey animal ingests certain poisons, each predator organism experiences an increased level of toxicity compared to the organism below it on its pyramid. This is sometimes described as moving up the food chain. Because of the complexity of the food chain, today's scientists prefer to describe it as a food web.

As an example, minnows and invertebrates might become exposed to DDT sprayed on a marsh to kill mosquitos. The minnow might not show ill effects, nor might the larger fish that ate the minnows, but the raptors would be getting a greater exposure because of the increased level of toxicity, or biomagnification. And people who eat fish

would also be exposed to the same levels of toxicity.

I recall watching a documentary on the liberation of WWII prisoners, in which the newly released people were being dusted with DDT to kill lice. So DDT wasn't only sprayed on the marshes but also was employed in many ways to kill unwanted pests. Many of these pests are beneficial. For instance, ants disperse seeds and change soil chemistry in helpful ways.

My great-uncle died from encephalitis, a mosquito-borne disease. If my father so much as saw a single mosquito in a room in the summer he came in with a pump spray can, and I can only guess what substances it contained. He was protecting his family from the beasts, or was he? And many folks remember children, in the 1960s and '70s, riding their bicycles behind insecticide-fogging trucks as they passed through the neighborhood. We just didn't know the dangers. Thanks to Rachel Carson, DDT was banned in 1972, though it took 10 years of lobbying to convince lawmakers to take action.

Back to lead. Birds who ingest it act strangely. They often have tremors and difficulty flying or can't fly at all. In a weakened state they are vulnerable to

predation. They have trouble finding food, reproducing, nesting, or caring for young. People also suffer developmental and cognitive impairments when exposed to lead.

So like DDT, lead travels its way up the food chain to both animals and us. Dabbling ducks are exposed to it from fishing sinkers, and eagles eat ducks. Also at risk are loons, swans, cranes, vultures, herons, gulls, egrets, and others. Duck hunters now must use steel shot for waterfowl hunting. But lead is still legal for other game species like deer, rabbits, upland birds, and squirrels. And wounded game is a likely prey species. In a study by the Raptor Center at the University of Minnesota, researchers found a relationship between deer hunting season and the incidence of eagle poisoning. They were able to find the source because coated bullets leave trace amounts of copper in kidneys.

Local hikers discover places by the Bayshore where unscrupulous hunters dispose of deer carcasses along remote roadsides. This presents at least two problems— possible lead exposure and roadside collisions for carrion-eating species. Game remains should be disposed

of properly— bagged and put out with the trash or buried.

Just one sinker is enough to kill a bird. Jigs and sinkers are now made of inexpensive alternatives to toxic materials. Bismuth, steel, and even ceramics and stone are now available in stores, and many fishermen are using them. If you fish, switch to these alternatives. Lead sinkers can be disposed of at your household hazardous waste days. Ammunition manufacturers offer alternatives to lead. Bans, along with more affordable options, need to be part of the solution.

Ingesting lead is usually fatal because the cure is very expensive and the bird's condition has often progressed too far for effective treatment. Death was the fate of the eagle that the Port Norris woman reported to me. Changes in our behavior can and will save lives!