

EVOKING LEGENDS TO RETHINK LEAD

Aldo Leopold wrote that “a conservationist is one who is humbly aware that with each stroke [of the axe] he is writing his signature on the face of the land.” As hunters today, we are signing our names with bullets.

Biologists and veterinarians have established with agonizing detail how lead cripples and kills raptors. Much of that poisoning can be traced directly to lead rifle bullets fired by big game hunters. When those tiny missiles collide with flesh, thousands of fragments, ranging in size from coarse ground pepper to microscopic dust, embed in tissue. Many people get uneasy once they learn how those toxic particles end up in freezers, in donations to food banks, and ultimately, on dinner plates. But the science is especially grim for condors and eagles, which rip flesh from

the gut piles and carcasses that hunters leave in the field. Where I’ve studied golden eagles in Montana’s Bitterroot Valley, nearly 95 percent of the birds have elevated lead levels.

In early September 2022, I stood in the Boone and Crockett Club library in Missoula, Montana, surrounded by conservation legends: Aldo Leopold, George Bird Grinnell, Theodore Roosevelt. A wall of their books towered behind me, their proud legacies encouraging each word from my lips. Across the room sat family, colleagues, and new friends, listening as I read from my

just-published book about lead poisoning in eagles.

I began by asking what our conservation heroes would have said about this issue now that nearly half of the eagles in North America show signs of chronic lead poisoning. One good clue comes from Grinnell. In 1894, seven years after he co-founded the Boone and Crockett Club, he warned the readers of *Forest & Stream* magazine that lead shot was poisoning waterfowl. I doubt any of these conservation titans would question the science we have on this subject today, but they may quarrel about how best to proceed.

I frequently read and hear arguments that mitigation actions are only warranted with evidence of population-level impacts. That reasoning holds up like a house of cards awaiting a gust. The recovery of California condors will only succeed if their diets are lead-free. Meanwhile, two studies

that harnessed statistical models concluded lead exposure is slowing the growth rates of eagles.

As bald eagle populations reach record highs, such a setback might seem trivial. But how will the public view hunters if we shrug off the problem as golden eagles face a more unclear future? Besides habitat loss, which strips eagles of nesting territory and prey, their home ranges are peppered with a gauntlet of obstacles: wind turbines, powerlines, vehicles traveling 70 miles per hour, and poisons lurking in flesh. Biologists worry that dialing back the species’ growth rate by a mere one percent might initiate declines.

Even if biologists and policymakers avoid making decisions at the individual level, I guarantee hunters do. Why do we strive for the most ethical kills? Why do we marvel at rams with deep curls, mule deer growing more stickers than a blackberry bush, and bears that could eclipse a dinner plate with a front paw? Why do we keep record books?

I once gazed upon a golden eagle whose brain and body were being crushed by lead. Once able to rocket from the heavens at 200 miles per hour, this bird lay paralyzed, wings drooping, talons locked in fists. In its final breaths, this once regal predator emitted chirps as delicate as smoke rising from a snuffed candle.

After that eagle’s death, I saw a cascade of



Copper (left) and lead (right) bullets before and after being fired into water.

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An adult bald eagle (left) clashes with an immature bald eagle (right) above a deer carcass.

social consequences: blame directed at hunters on social media, another arrow added to the quiver of anti-hunters. I was left wondering if each poisoned eagle inched policymakers toward legislation.

I'm not in favor of a blanket ban on lead ammunition. But I'm not in favor of shielding my eyes as raptors across our nation are rendered flightless, particularly when there are great alternatives for hunters to consider. A growing number of hunters and organizations share my attitude. Groups such as the North American Non-Lead Partnership, Sporting Lead-Free, and huntingwithnonlead.org are all forging bonds with the hunting community to voluntarily encourage the use of lead-free ammunition. I also see state agencies become more vocal. They've published information about lead exposure in hunting regulations, on social

media, and in short films.

Outreach efforts increase awareness, but some scientists claim voluntary measures fall short. In 2019, California began requiring all hunters to ditch lead. Denmark recently banned lead ammunition for hunting, which will take effect in 2024. Many hunters will remember the U.S. Fish and Wildlife Service banning lead shot for waterfowl hunting in 1991, which saved an estimated 1.4 million ducks in 1997 alone.

However, pitfalls may emerge if state and federal governments suddenly flip switches mandating hunters to shoot lead-free bullets. Will availability meet demand? How will game wardens differentiate between lead and lead-free bullets when both sport polymer tips? And in the current political climate, how will hunters react to a top-down mandate?

I spoke with a man

who lived in California when the state abruptly required hunters to shoot lead-free within the range of California condors. In 2008, buying copper bullets could quickly drain your wallet. They were difficult to find, and as with any new bullet, accuracy was not guaranteed. The man didn't comply.

Fast forward to the present, and various bullet manufacturers are now producing lead-free bullets. I've conducted ballistics testing on many of them and found equal or better accuracy, expansion, and penetration than lead bullets. My .270 Winchester is head-over-heels for one copper bullet. They punch bullseyes as if magnetized to center. Upon upset, the bullets petal into lethal blossoms that bulldoze through flesh and bone.

But copper bullets may not be the proverbial "silver bullet" for every hunter.

Lead-free options for uncommon cartridges such as .300 Savage and 6mm Remington are scarce and may require handloading. Long-distance shooters must carefully select bullets that will expand at distance while still carrying lethal energy—but that also holds true for lead bullets, and manufacturers are busy designing lead-free bullets tailored to meet that need. Yet, I've met hunters who delightfully embrace these challenges by developing custom loads or even lathing their own copper bullets.

The path forward on lead will be tortuous, requiring skillful rhetoric, better availability of lead-free ammunition, and hunters understanding what's at stake. After all, the solution spirals back to those of us who make boot prints, gun in hand.

Will we dig in our heels, tiptoe forward, or lunge headfirst? ■