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Getting the lead out

A proposed ban on lead ammo in California could save condors

BY MITCH TOBIN

Dean Rice is giving mouth-to-mouth to a California condor. Three assistants prop up the nearly 20-pound bird as the veterinarian puts his lips on a tube protruding from the beak. Bird 134 is motionless, his eyes turned back inside his head. Lead poisoning, the leading killer of condors, is close to claiming another victim. Biologists have known for decades that lead sickens condors, bald eagles and other birds that swallow bullet fragments left inside animal carcasses. Hunting waterfowl with lead shot has been illegal since 1991, but the heavy metal remains the ammo of choice for shooting game and upland birds.

Wildlife advocates are working to change that. Pressured by a lawsuit, the California Fish and Game Department has proposed a ban on hunting with lead ammo in condor country. In Arizona, state and federal officials have adopted a softer approach, focusing on hunter education and coupons for unleaded bullets.

Biologists agree that if the lead problem isn't solved, the condor population — now approaching 300 in zoos and the wild after falling as low as 22 in 1982 — may never become self-sustaining.

Until he was poisoned, 134 exemplified the progress of the condor recovery program, a \$40 million flagship for the Endangered Species Act. Released in 1998 as a 2-year-old, 134 glided above northern Arizona on wings nearly 10 feet wide. He quickly learned to locate the remains of big game and weaned himself off the stillborn calves that biologists dole out to provide birds lead-free meals. "He was a perfect example of the fact that they don't need us all that much," says Thom Lord of the Peregrine Fund, the nonprofit group that releases the Arizona birds and manages them on a daily basis.

In January 2006, Lord and his colleagues lost track of Bird 134. His prospective mate had already been poisoned and was in captivity receiving chelation —



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painful injections of a chemical that binds to lead and ferries it out of the body. Somewhere in the Grand Canyon, 134 was grappling with the toxic metal on his own.

After a rafter reported that 134 was stumbling along the shoreline of the Colorado River, Lord flew over the canyon and located the bird with radio telemetry. Lord then loaded up his backpack, descended some 5,000 feet to the river, and found 134 tucked under a rock. "This bird," Lord says, "was about as sick as they can get before they die."

The only real option for rescue was a helicopter ride out. "It seems like a lot to do for an individual bird," Lord says, "but if you imagine how many resources have been invested in each of these birds, they're all certainly worth that, if not more." Lord climbed out of the canyon the same day. The next morning, he and a colleague boarded a Park Service helicopter and retrieved

the bird. Three hours and one plane flight later, 134 was in a cage at the Phoenix Zoo.

Lead has poisoned at least 59 types of nonaquatic birds, including hawks and eagles, which pluck bullet fragments from carrion like condors do. Quail, grouse and other ground birds also swallow lead pellets when they pick up grit for their gizzards. Condors may be predisposed to lead poisoning because they don't cough up pellets of indigestible material as often as other raptors.

A spate of lead poisonings in the mid-1980s helped spur the U.S. Fish and Wildlife Service to capture the world's remaining wild condors. A breeding program in zoos has since bolstered the species' numbers, but the condor's glacial reproductive rate makes the species vulnerable.

Lead poisoning also raises the prospect of a sudden catastrophe.



Lead bullets have a tendency to explode when they hit their victims, as is evident in this X-ray of a deer carcass, shot by a lead-core, lead-tip, 175-grain bullet. It scattered 547 lead fragments through the animal, some inches away from the bullet's path. PEREGRINE FUND

On several occasions, multiple birds have been sickened by scavenging the same tainted carcass. Since 1992, at least 18 condor deaths have been attributed to lead, including three birds recovered in Arizona in 2007. Other condors that succumbed to predators or power lines may have done so because sub-lethal doses of lead impaired their eyesight, flying skills or mental abilities.

Condor 134 couldn't even stand up when he arrived in Phoenix. Blood tests revealed the most severe case of lead poisoning veterinarian Kathy Orr had ever seen. The lead had paralyzed his digestive tract: The bird was starving to death.

Orr and her colleagues surgically inserted a feeding tube into 134's stomach and used Metamucil to flush his system. Still, 134 was dangerously anemic. They had to find condor blood for a transfusion.

After the procedure, 134 was carried back to his cage to recover. Orr, frazzled from treating three lead-poisoned condors in recent weeks, took me to her office. "The lead," she said, "is what's going to kill the program."

Orr showed me two X-ray images that summed up the problem. The first one depicted the spine of a deer that had been shot with a .270 Winchester rifle. Dozens of brilliant white specks of lead were sprinkled among the beige-colored vertebrae and the surrounding dark tissue. Lead bullets often explode upon



California Condor 134, stricken with lead poisoning, receives mouth-to-mouth at the Phoenix Zoo's animal hospital in March 2006. MITCH TOBIN

impact. In a 2006 study of deer shot with a variety of bullets, Peregrine Fund researchers found an average of 160 shards of lead, many barely visible, some nearly six inches from the wound channel.

The second X-ray showed a condor's digestive tract. At first, I couldn't see the lead's bright signature. Orr used a pen to point out a piece smaller than a grain of rice. "You've got this big, magnificent bird — one of 273 in the whole world — and this little piece is all it takes," she said.

A few weeks after I visited 134, the other two condors Orr had treated were returned to the zoo with paralyzed digestive systems. One bird died the day he arrived in Phoenix; less than a week later, the other condor was also dead.

Condor advocates have long urged hunters to retrieve their quarry and remove or bury gut piles to reduce the odds of lead poisoning. But every year in California's condor country, hunters leave behind the remains of more than 36,000 deer, coyotes and wild pigs, plus an untold

number of squirrels, according to a 2003 University of California at Davis study.

Forcing hunters to switch their ammunition isn't without precedent. Before lead shot was outlawed for waterfowl hunting, 2 to 3 percent of North America's waterfowl died each year after swallowing the toxic pellets.

Though the 1991 ban saved millions of birds, it initially didn't sit well with hunters. Back then, alternatives were harder to come by. Today, unleaded rifle bullets are a few clicks away on the Internet, but they still aren't manufactured for all guns.

Anthony Prieto, an avid sportsman from Santa Barbara, says the extra few dollars for a box of unleaded ammo is a pittance compared to the money that hunters spend on rifles and scopes. Prieto thinks psychology, not economics, makes hunters resist. "I always use the analogy of a baseball player with a certain bat or a certain glove," he says. "They're superstitious."

Prieto was sold on unleaded

bullets in the mid-1990s, after trying homemade ammo. Compared to regular rounds, the bullets were faster, more accurate and retained more weight — and therefore killing power — when they struck their target. "Back in '99, I used it to shoot an elk in Montana," Prieto says, "and that elk was dead before it hit the ground." Prieto was able to eat the meat knowing he wasn't ingesting lead himself.

In November, Prieto joined fellow hunters, physicians, environmentalists and Native Americans in suing California Fish and Game. The department has since proposed a ban on lead ammo in condor habitat; as early as April, the independent commission that oversees state hunting rules may approve the recommendation.

Not everyone believes the ban will work, and some biologists fear it will prompt a lethal backlash against condors. Walt Mansell, a retired game warden who is secretary for the California Rifle and Pistol Association, dismisses it as a "feel good" measure that will be tough to enforce. "We're talking about millions of dollars per year in increased patrol costs to raise the compliance level so it has a positive effect on the condor," he says.

Jeff Miller of the Center for Biological Diversity acknowledges that compliance will never be 100 percent. Still, he says, "voluntary measures alone aren't going to work." Because of the lead threat, he



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says, the condors are somewhere between zoo animals and wild birds: They must be monitored intensively, captured frequently, subjected to chelation and fed subsidies of lead-free carrion. All this can acclimate the birds to people and make them more likely to fall victim to manmade hazards.

For years, sporting and firearms groups have opposed new regulations, questioning whether hunting with lead ammo is really to blame for sick condors. But a hefty stack of scientific studies, including five published in 2006, supports the connection. Veterinarians have repeatedly extracted lead shot and bullet fragments from the birds' guts. The smoking gun was published in August 2006, when researchers from the University of California at Santa Cruz used isotope analysis to determine that the lead in condors' blood matched the "fingerprint" of the lead used in bullets.

In Arizona, condor advocates have no choice but to rely on voluntary measures. The species' reintroduction there was contingent on the bird not forcing any regulatory changes. In 2005, the Arizona Game and Fish Department spent \$105,000 of lottery proceeds to give hunters



California Condor 134, then receives a blood transfusion. After a desperate fight for life, the condor recovered. MITCH TOBIN

coupons for free unleaded bullets if they drew a permit on the Kaibab or Paria plateaus, prime foraging areas for condors just north of the Grand Canyon. About two-thirds of the 2,393 hunters redeemed their coupons, and 89 percent said they'd use the bullets again if they were free, suggesting that a significant dent could be made in the problem with a relatively inexpensive program.

The blood transfusion cured 134's anemia. After more than three months of treatment, Kathy

Orr sent the bird back up to northern Arizona, this time via the highway. About six months after 134 nearly died at the bottom of the Grand Canyon, he exited a pen atop the Vermilion Cliffs and took to the sky.

"He's starting to show courtship behavior, and we're hoping he'll be a breeder this year," Lord says. "This is a great example of a bird that would have no problem doing just fine in the wild — with the exception of this lead issue."

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