

## LEAD

Lead is an inexpensive and malleable metal used in ammunition, fishing weights, and historically in paint, water pipes, and as a gasoline additive. Like people, birds suffer health problems or death from ingesting lead. Over the past three decades the Clean Water Act and Clean Air Act have helped reduce lead exposure for people. We still pump thousands of tons of it into the atmosphere each year, however.

**Problems:** Birds will accidentally ingest lead shotgun pellets, ammunition fragments, or fishing sinkers while foraging on lake bottoms, scavenging on carcasses left behind by game hunters, or consuming grit to aid digestion. Once digested and absorbed into the blood, as little as a single lead pellet can be lethal to a bird, but sub-lethal amounts also compromise health and cause neuro-

logical dysfunction. Birds are particularly susceptible to lead poisoning, because of their small size and fast metabolic rates. Lead poisoning killed two to three percent of North America's waterfowl between 1938 and 1954, and is still the leading cause of death for adult loons in the Northeast. It also continues to hamper California Condor recovery, and kills other scavenging birds including crows, ravens, eagles, and hawks. Lead contamination in game meat poses a health risk to people as well. As many Mourning Doves may die annually in the Midwest from consuming lead shot as are killed by hunters. Finally, Laysan and Black-footed Albatross chicks suffer lead poisoning from ingesting contaminated paint chips at their main breeding colony on Midway Atoll, where abandoned military buildings remain in deteriorating condition. The effects of atmospheric lead on birds are harder to ascertain and need further research.

**Solutions:** The U.S. began restricting the use of lead in the 1970s, banning lead paint on toys and furniture in 1977 to safeguard human health, and banning lead in gasoline in 1996 under the Clean Air Act. Lead water pipes were banned under the Clean Water Act of 1984. Lead shot was banned for use in waterfowl hunting in 1991, though it is still permitted for use on upland game birds. Canada banned lead shot completely in 1999. In 2007, California announced a ban on lead ammunition in the state within the range of the California Condor. Arizona currently gives away non-toxic copper ammunition to hunters, and although voluntary participation in this program is high, it is not enough to prevent all lead poisoning of condors in the state. Meanwhile, many poisoned condors have been captured, treated to reduce blood lead levels, and re-released into the wild.

Canada and some New England states have also restricted the sale and use of lead sinkers and jigs in fishing gear below certain weights (as has Great Britain). The use of lead ammunition and sinkers was scheduled to be phased out by 2010 on all Na-



California Condors are poisoned by lead bullet fragments ingested while scavenging animal carcasses.

PHOTO: FWS

tional Park Service lands, but the Park Service has backed off on ammunition due to complaints from pressure groups. It is estimated that banning lead shot for waterfowl hunting in the U.S. may have prevented the deaths of more than one-million ducks per year, since ducks often ingest spent shot that falls into wetlands. Tens of thousands of shot pellets are found per acre in heavily hunted areas, with bird fatalities resulting from the ingestion of just one or two pellets. This ban has also saved many Bald Eagles, which were being poisoned by eating crippled ducks. Lead poisoning among raptors and other land-birds will not end until all lead ammunition is phased out and replaced by non-toxic alternatives. ABC is working with government, manufacturers, retailers, hunters, and private land-owners to reduce lead contamination from ammunition, promote non-toxic alternatives, and clean up lead contamination on Midway.

### Actions:

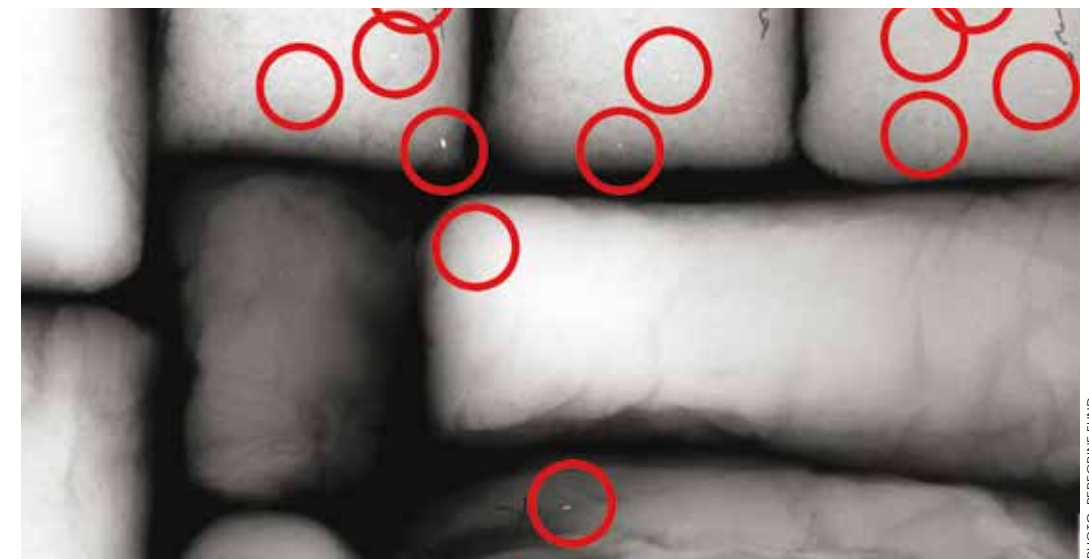
- Sport hunters and fisherman can use lead-free ammunition and tackle; non-toxic shot made of steel, tungsten, and other alloys is available to hunters as an alternative to lead shot. Winchester recently began manufacturing lead-free .22 bullets, and many lead-free rifle bullets are also available for large game hunting. As the va-



This X-ray shows three lead pellets in the digestive tract of a live Spectacled Eider ingested while the bird was foraging.

PHOTO: PAUL FEINT / USGS

riety and quality of non-toxic ammunition and fishing tackle improves, excuses for continuing to contaminate the environment with lead become less and less justifiable.



Lead fragments are circled in this X-ray of packed venison; some would likely be too small for a person to notice when eating.

PHOTO: PEREGRINE FUND