Final Position Statement

Lead in Ammunition and Fishing Tackle

Lead has been used in ammunition and fishing tackle for centuries. It is an effective and inexpensive element for the manufacture of projectiles and weights. Although it is a naturally occurring element in the environment, lead has no functional or beneficial role in biological systems, and at very low levels of exposure it can be toxic, depending on the species and the health and age of an individual. At toxic levels lead damages the nervous system, causing paralysis and eventual death; at lower levels it is known to cause a variety of sublethal effects such as neurological damage, tissue and organ damage, and reproductive impairment.

Realization of the hazards of lead ammunition to waterfowl and some upland game birds can be traced to the late 1870s, while the hazards of lead fishing sinkers to waterfowl became apparent in the 1970s, when lead was found to poison swans in the United Kingdom (UK). In the 1970s and 1980s, the UK and some jurisdictions within the United States and Canada began placing restrictions on the use of lead ammunition and fishing tackle. Today lead from ammunition and fishing tackle provides a small fraction of total environmental releases, but it exists in a form that can be readily ingested by some species of wildlife.

Metallic lead can remain relatively stable and intact for decades, even centuries. However, under certain environmental conditions (e.g., acidic or basic water or soil) lead from shot or tackle can be readily released and taken up by plants or animals, causing a range of biochemical, physiological, and behavioral effects in some species of invertebrates, fish, amphibians, reptiles, birds, and mammals. Lead that is adsorbed or incorporated into food items through the soil, as well as lead fragments in carcasses or deposited at shooting sites, is known to be consumed by some birds and small mammals, resulting in elevated lead concentrations. Ingestion by reptiles, birds, and mammals of spent ammunition and lost fishing tackle has also been documented and can cause a range of negative effects in individuals, potentially leading to population-level consequences in some species (e.g., waterfowl, eagles, condors, mourning doves, and loons).

From a public health perspective, lead potentially can lead to a variety of human health problems, such as neurological effects and stunted growth, particularly in children. Although the extent is still unclear, recent research indicates that consumption of game taken with lead ammunition may increase blood-lead levels in humans. When lead that is imbedded in game meat becomes exposed to acid in the human stomach, lead may be absorbed into the system. Even if a lead pellet or bullet completely passes through an animal, a small amount of lead may be left in the tissue and may be absorbed by a person consuming the meat.

Lead poisoning related to spent ammunition and lost fishing tackle has been extensively studied in birds, and at least two studies indicate that the ban on the use of lead ammunition for hunting waterfowl and coots in North America has successfully reduced lead exposure in waterfowl. Nonetheless, other species such as upland game birds (e.g., doves and quail) and scavengers

(e.g., vultures and eagles) have been documented to be exposed to lead, and the California condor population may be at risk. Despite the prohibition on lead shot for waterfowl hunting, current data for raptors and avian scavengers indicate increases in lead exposure in these species, especially during hunting season. Accordingly, 24 states (as of 2008) have instituted restrictions on the use of lead ammunition to minimize effects to upland game birds, eagles, and other species. The hazard of ingested lead sinkers and fishing tackle is well-documented in swans and loons, and restrictions on the sale or use of lead weights have been instituted in parts of the UK, Canada, several other countries, and five states in the U.S. (as of 2008) in order to minimize effects on these and other potentially vulnerable species. There are only limited data on the adverse effects of lead ingestion at shooting ranges, and reproductive and mortality rates at these sites have not been adequately investigated.

There has been an extensive effort in the development, efficacy testing, and regulation of alternatives to lead-based ammunition for hunting waterfowl and waterbirds. Several effective nontoxic alternatives have been approved and currently are available in North America and elsewhere. Several manufacturers have developed nontoxic ammunition that can be used safely in all gauges of modern shotguns, as well as nontoxic rifle bullets for hunting large game. However, the widespread manufacture of this shotgun and rifle ammunition depends on assured markets provided by regulation and enforcement. Nontoxic shot may be used in all clay target sports and currently is required by some shooting facilities. Dozens of substitutes for lead fishing tackle have entered the marketplace in recent years. A few, but not all, alternative metals in fishing tackle have been deemed safe if ingested by waterfowl and some other birds and mammals.

The policy of The Wildlife Society in regard to lead in ammunition and fishing tackle is to:

1. Recognize that lead has been known for centuries to be a broad-spectrum toxicant to humans and wildlife.

2. Advocate the replacement of lead-based ammunition and fishing tackle with nontoxic products, while recognizing that complete replacement may not be possible in specific circumstances.

3. Recognize that the removal of lead for hunting, fishing, and shooting will require collaboration among affected stakeholders (including wildlife professionals, ammunition and tackle manufacturers, sportsmen, policymakers, and the public). It may require a phased-in approach, and will require explicit and targeted educational strategies at both the national and international levels, thereby acknowledging and supporting the crucial role that hunters and anglers play in wildlife management and conservation.

4. Encourage studies on reducing barriers to the development of nontoxic ammunition and fishing tackle, additional research that generates toxicological and environmental chemistry data, monitoring and modeling of exposure effects, and studies predicting consequences of exposure and long-term population-level effects. The need for additional information, however, should not delay the educational efforts and the phasing-in of nontoxic ammunition and tackle where practicable.

5. Support educational efforts to promote greater public awareness and understanding of the consequences of lead exposure to wildlife populations, and emphasize the potential gains for wildlife and environmental quality from use of nontoxic ammunition and fishing tackle.

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