**Concerns Rise Over Known and Potential Impacts of Lead on Wildlife**

Seventeen years after nontoxic shot requirements were established for hunting waterfowl, attention has shifted to lead poisoning in other species. These include upland game birds, scavengers (such as vultures, hawks and eagles) and other waterbirds that are exposed to lead through the ingestion of spent lead shot, bullet fragments and fishing sinkers.

Lead is a metal with no known biologically beneficial role, and its use in gasoline, paint, pesticides and solder in food cans has nearly been eliminated. Although lead shot was banned for waterfowl hunting in 1991, its use in ammunition for upland hunting, shooting sports and in fishing tackle remains widespread.

The most significant hazard to wildlife is through direct ingestion of spent lead shot and bullets, lost fishing sinkers, tackle and related fragments, or through consumption of wounded or dead prey containing lead shot, bullets or fragments.

Dr. Barnett Rattner, USGS contaminant expert comments, "The magnitude of poisoning in some species such as waterfowl, eagles, California condors, swans and loons, is daunting. For this reason, on July 1, 2008, the state of California put restrictions on the use of lead ammunition in parts of the range of the endangered California condor because the element poses such a threat to this endangered species." Lead poisoning causes behavioral, physiological, biochemical effects and often death. While fish ingest sinkers, jigs and hooks, mortality in fish seems to be related to injury, blood loss, exposure to air and exhaustion rather than the lead toxicity that affects warm-blooded species.

Although lead from spent ammunition and lost fishing tackle is not readily released into aquatic and terrestrial systems, under some environmental conditions it can slowly dissolve and enter groundwater, making it potentially hazardous for plants, animals and perhaps even people if it enters water bodies or is taken up in plant roots. For example, said Rattner, dissolved lead can result in lead contamination in groundwater near some shooting ranges and at heavily hunted sites, particularly those hunted year after year.

Research on lead poisoning has been focused on bird species, with at least two studies indicating that the ban on the use of lead shot for hunting waterfowl in North America has been successful in reducing lead exposure in waterfowl. The authors found that upland game, like doves and quail, and scavenging birds, such as vultures and eagles, continue to be exposed to lead shot, putting some populations (condors in particular) at risk of lead poisoning.

Some states have limited the use of lead shot in upland areas to minimize such effects, and others are considering such restrictions. Environmentally safe alternatives to lead shot and sinkers exist and are available in North America and elsewhere, but use of these alternatives is not widespread.

To obtain a copy of The Wildlife Society technical review report, "Sources and Implications of Lead-Based Ammunition and Fishing Tackle on Natural Resources," visit [www.wildlife.org](http://www.wildlife.org/). Also, the American Fisheries Society published an article on the [known and potential impacts of lead in shooting and fishing](http://dx.doi.org/10.1577/1548-8446-33.5.228).

<http://www.nwhc.usgs.gov/disease_information/lead_poisoning/>

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See also, “How & Why Birds Die from Lead Poisoning”

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http://suite101.com/a/lead-poisoning-in-birds-a16080

NOTE

As Christians we are reminded in key scriptures that redemption & salvation is for ALL of creation: Mark 16:15: in the “Great Commission” Jesus says “Go into all the world [the whole *cosmos*] & proclaim the good news to the whole creation [in Greek: every created being].”

John 3:16: “God so loved the world [*cosmos*] that he gave his only Son, so that everyone who believes in him may not perish but may have eternal life.”

In the “Rainbow Covenant” of Genesis, 9:8-17,God makes a new covenant with Noah and all the other creatures together.

NCC: This helps us expand our sense of our neighbor as well as of those included in the one body!

See Dr. Carol Johnston’s AND THE LEAVES OF THE TREE ARE FOR THE HEALING OF THE NATIONS: Biblical and Theological Foundations for Eco-Justice (1997 booklet, Office of Environmental Justice, PCUSA)