

Lead Poisoning of Wisconsin's Birds

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Introduction

Lead is a toxic metal, yet tons of lead are deposited in Wisconsin's environment annually through hunting, fishing, and recreational shooting. Lead deposited in the environment will persist indefinitely and will not break down over time into less-toxic compounds. Mortality due to lead poisoning has been documented in a wide variety of birds. Lead toxicity can have sub-lethal consequences that can compromise avian survival and reproductive success. Signs of lead intoxication in birds can vary but include behavioral changes (e.g., loss of escape response); lethargy; anorexia; paralysis of the crop, esophagus, proventriculus, gizzard, legs, or wings; vomiting; diarrhea; incoordination or lack of muscle control; convulsions; anemia; and emaciation (starvation/muscle wasting).

Facts and Research Findings

The literature on lead poisoning of North American wildlife is extensive (see "Links" and "Additional Literature" below).

- Lead poisoning has been documented in at least 25 species of water birds.
- According to the Wisconsin Department of Natural Resources (WDNR) Wildlife Health Team, 26 Common Loons were submitted to the team between 2006 and 2008. Approximately one-third of those loons were judged to have died of lead poisoning from the remnants of lead fishing tackle recovered from their GI tracts. Research around the nation has found that poisoning from lead fishing tackle is responsible for up to half of adult loon deaths.
- In Wisconsin, lead poisoning is a significant mortality factor for the Trumpeter Swan, recently removed from Wisconsin's Endangered species list. Of 143 Trumpeter Swan carcasses submitted to the WDNR for post-mortem examination between 1991 and 2007, 36 deaths (~25%) were attributed to lead poisoning.
- Of 583 Bald Eagle carcasses submitted to the WDNR between 2000 and 2007, 91 (~16%) of those deaths were attributed to lead poisoning.
- A WDNR study published in 2005 found that some American Woodcock in WI are accumulating unusually high levels of lead in their wing bones. The exact source of the lead is unknown at this time, but data suggest a local and dietary source.
- In 1992, at least 200-300 Canada Geese died as a result of acute lead poisoning from ingesting lead shot on a former trap and skeet shooting range near Lake Geneva in Walworth County, WI. The US Environmental Protection Agency reportedly spent ~\$1.88 M on a Superfund cleanup of the site, removing ~28,000 tons of lead-contaminated soils. The most recent large-scale lead poisoning event in WI occurred when ~200 Canada Geese were collected in 1999 and again in 2000 from a location in Outagamie Co.

- Nationally, lead poisoning of waterfowl and the Bald Eagle resulted in a 1991 federal ban on the use of lead shot in waterfowl and coot hunting. In 1997 alone, the U. S. Fish & Wildlife Service (USFWS) estimated that the ban on lead shot saved 1.4 million ducks. In Canada, a study showed a decrease in lead levels in bone in waterfowl of 50-70% as a result of the ban on lead shot for waterfowl hunting in that country. These and other studies have demonstrated that switching to nontoxic shot, defined as any shot type that does not cause sickness and death when ingested by birds, can help protect bird populations and improve the environment.
- Nontoxic ammunition is becoming increasingly available. There are now several shot types approved as nontoxic. Affordable, suitable alternatives also exist for lead fishing tackle. (See links below for sources, especially the REGI website).
- In order to help protect birds from lead toxicity, certain lead fishing tackle has been banned in NH, ME, NY, VT, Great Britain, the Canadian national parks and national wildlife areas, and in three USFWS wildlife refuges.
- There is increasing concern about possible human and wildlife health effects related to the fragmentation of lead or partial-lead bullets in venison. The fragments are not easy to see, except by x-ray, and may be accidentally eaten without the consumer being aware of their presence. For wildlife, ingestion of these fragments by Bald Eagles, who scavenge unrecovered deer carcasses, is of special concern. For more information, see the WDNR web page on this topic: <http://www.dnr.state.wi.us/org/land/wildlife/lead.htm>.

Research Needs

WBCI encourages research aimed at understanding the extent of the problem of lead poisoning in birds in Wisconsin. Suspected cases of lead poisoning in birds should be reported to your local WDNR Warden or Wildlife Manager, and licensed wildlife rehabilitator so that the WDNR can better monitor the extent of the problem in the state and the affected birds may receive treatment.

Recommended Actions

- Use fishing sinkers and jigs made from nontoxic materials such as tin, bismuth, stainless steel, ceramic, and tungsten-nickel alloy.
- Use nontoxic rifle and shotgun ammunition. Nontoxic ammunition is increasingly available at many locations where lead ammunition is sold and online.
- Ask your local bait and tackle shop and your ammunition dealer to carry a variety of non-lead products if they don't already carry them.
- Dispose of old lead sinkers and jigs properly. Turn these items in at your local hazardous waste collection site or contact a local metals recycling company. **Keep lead out of the reach of children while you are awaiting proper disposal.**
- Spread the word. Tell others about the problem and encourage them to switch to non-lead fishing tackle and ammunition. You can help by distributing "Get the Lead Out" educational "rack cards" to your friends, local sporting goods distributors, and sportsman's clubs. Go to [Get the Lead Out](#) to view the card online and obtain cards for distribution.

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Links to Information Sources

- WBCI “Get the Lead Out” webpage [Get the Lead Out](#)
- Wildlife Without Lead http://www.hawkwatch.org/lead_site/index.htm
- Raptor Education Group, Inc. “lead sinker exchange” webpage, with a list of non-lead tackle suppliers/manufacturers
http://www.raptoreducationgroup.org/View_Special_Projects.cfm?title_bar=Lead%20Sinker%20Exchange&NewsID=11
- Lead and Wildlife: A Bibliography of Selected Citations – 2001
http://www.hawkwatch.org/lead_site/background/lead&wildlife_bibliography.pdf
- Let’s Get the Lead Out! (Non-lead alternatives for fishing tackle) (MN)
<http://www.moea.state.mn.us/reduce/sinkers.cfm>
- Lead Poisoning (Tufts Cummings School of Veterinary Medicine)
<http://www.tufts.edu/vet/lead/>
- Lead Poisoning (MI) http://www.michigan.gov/dnr/1,1607,7-153-10370_12150_12220-26676--CI,00.html
- The Use of Nontoxic Shot for Hunting in Washington
<http://www.wdfw.wa.gov/wlm/game/water/nontoxicshotfinal.htm>
- Lead Toxicosis in Michigan Loons from Ingestion of Lead Sinkers and Jigs: *A Real Problem* <http://www.michiganloons.org/lead.htm>
- Concerns Rise Over Known and Potential Impacts of Lead on Wildlife (National Wildlife Health Center, Madison, WI) (Also contains a number of related links.)
http://www.nwhc.usgs.gov/disease_information/lead_poisoning/index.jsp
- Lead Fishing – Sinkers and Animals (U.S. EPA)
<http://www.epa.gov/owow/fish/animals.html>
- Lead Fishing Tackle (State Environmental Resource Center)
http://www.serconline.org/lead/pkg_frameset.html
- LoonWatch: Get the Lead Out! <http://www.northland.edu/sigurd-olson-environmental-institute-loon-watch-get-the-lead-out.htm>
- Environment Canada - Toxicity of Lead Shot and Sinkers http://www.cws-scf.ec.gc.ca/publications/papers/88/chap3_e.cfm
- Loon Preservation Committee – Causes of Mortality and Nest Failure
<http://www.loon.org/mortality.php>
- Minnesota Public Radio – Environmental Threat: Lead Sinkers (a still effective re-telling of this information)
http://news.minnesota.publicradio.org/features/200005/09_engerl_fish-m/index.shtml
- The Wildlife Society - Final Position Statement: Lead in Ammunition and Fishing Tackle. http://joomla.wildlife.org/documents/positionstatements/Lead_final_2009.pdf

Additional Literature

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http://www.peregrinefund.org/Lead_conference/PDF/0205%20Strom.pdf
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