Getting the lead out

Reducing lead poisoning in fish and wildlife

Understanding lead in plants and animals

It happens every year. Somebody shoots an eagle in Michigan – an illegal act – and news outlets across the state pick up the story. People, rightly, are outraged. “We must do more to protect our wildlife!” … “Who would do such a thing?” What would they say if they understood the state’s eagle population faces a much bigger threat?

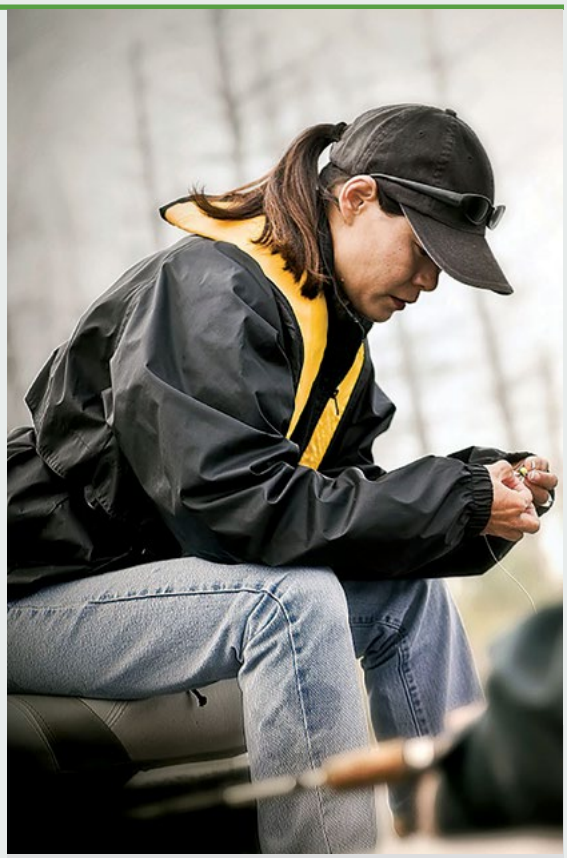
There is evidence that lead poisoning through ingestion can occur in 130 wildlife species, but it’s a more serious issue in birds, which can get lead poisoning by ingesting lead pellets, bullet fragments or certain types of fishing tackle – which are used in hunting and fishing, two cherished, popular and legal outdoor traditions. A single lead sinker (a weight attached to fishing line) can kill a loon, while just one pellet can be toxic to waterfowl.

The risk is quite real for bald eagles, too. Lead ammunition is a major source of lead exposure for bald eagles in the Midwest, and here in Michigan the top three mortality factors for these birds over the last three decades are trauma (car), trauma (unspecified) and lead poisoning – serious threats to the state’s 3,500-4,000 population.

For every illegally shot and killed eagle, eight more are dying of lead poisoning.

It’s a contributing factor in increased mortality rates in some protected species, including California condor, trumpeter swan and common loon. Michigan is home to an estimated 2,000 common loons, including 800 breeding pairs. Since 1987, lead poisoning has been this species’ third leading mortality factor after trauma and Type E botulism.

It’s important to note, too, that plants can absorb lead through their roots, but the lead tends to concentrate there rather than moving to stem or foliage. Fish and wildlife could ingest lead by consuming affected plants, but this is not a significant source of elevated levels.



Need-to-know facts for hunters and anglers

- Waterfowl and other wildlife can get lead poisoning by ingesting lead bullet fragments and lead sinkers and jig heads.
- People who eat game harvested with lead shot or bullets can have elevated lead levels in their blood.
- More than 80,000 tons of lead shot and bullets are deposited at U.S. outdoor shooting ranges every year.
- Lead has staying power – it can remain in the environment for 100 to 300 years before it starts to break down.

A changing industry: Ammunition, fishing tackle alternatives

Tens of thousands of tons of lead shot and lead bullets used in recreational hunting and shooting are released into the environment every year, while 470 million lead sinkers – another 2,700 tons – are produced annually in the U.S. for recreational fishing and could potentially be deposited in the environment. These are major sources of lead exposure in wildlife.

Lead jig head, fishing tackle and gizzard stones removed from a loon.

The good news? Several nontoxic options are available to hunters and anglers, and some states have responded with requirements on using nontoxic ammunition, restrictions on lead ammunition or total bans of the use and/or sale of lead sinkers.

Safer, lead-free options

- Copper, the most common alternative for ammunition (bullets and slugs), doesn't fragment and has better killing power (larger wound channel) and better ballistics than lead.
- Steel is another attractive option for ammunition (shotgun pellets), but, because it's lighter than lead, requires a heavier load and a bigger propellant charge.
- Alternative materials for sinkers and jigs include tungsten, tin and steel. Tungsten is 70% heavier than lead but costs more, and has gained popularity particularly for ice fishing. Tin has a lower density than lead and is malleable and easy to cast. Steel makes noise (an attractant for fish) and is harder than lead.

In the U.S. every year, anglers spend about $87.5 million on fishing sinkers, and hunters upwards of $1.4 billion for ammunition. Manufacturers say a shift to nontoxic materials could result in increased business costs that, if passed on to customers, could cause a drop in participation. Realistically, the switch would amount to annual expense increases of just 1% to 2% for hunters and less than 1% for anglers.

When that slightly higher cost can help reduce lead exposure and poisoning in fish and wildlife and ensure safer game to eat, it's an undeniably positive return on investment.

How can you help?

Alternatives that are safer for people and wildlife do exist, and it makes sense to elevate the conversation and boost public awareness. If you hunt, consider using nontoxic shot for all huntable species and nontoxic bullets or slugs for big game. If you fish, consider using nontoxic fishing tackle, recover snagged tackle and properly dispose of lead sinkers and jigs at hazardous-waste collection sites.

Fish and wildlife researchers and managers, veterinarians, rehabilitators, manufacturers and retailers, please lend your support to cooperative educational campaigns, voluntary programs and other avenues to inform consumers about these safer options.

In a U.S. Department of Health and Human Services report to Congress, the need for change is clear: "Lead is potentially toxic wherever it is found, and it is found everywhere." Let's work together to get the lead out!

Want to learn more? Visit Michigan.gov/WDM for detailed info on lead exposure and poisoning in wildlife and other helpful resources. Contact: DNR wildlife biologist/pathologist Tom Cooley at 517-336-5034 or CooleyT2@Michigan.gov.