



In the United States top predators such as eagles have picked up lead shot secondhand – by eating ducks. Research in New Zealand indicates that the same may be happening to harriers.

Photo: Brian Chudleigh

the liver, kidney and bones. Acute poisoning usually occurs when more than 10 shot are eaten and birds die within a few days, often with no obvious signs of poisoning or weight loss. More often, sub-acute poisoning occurs when birds eat far fewer shot and die 2-3 weeks later. Birds weakened by low levels of lead poisoning are more susceptible to predation, sickness and being shot.

If the effects of lead poisoning on humans are ghastly, they are no less so on waterfowl. The lead paralyses the gut muscles, effectively starving the bird. The nervous system degenerates, capillaries rupture, haemoglobin levels drop and anaemia sets in. The functioning of the liver, heart and other organs is disrupted. Bile builds up in the gut and stains the faeces green.

It is rare to see a mass die-off of lead-poisoned birds. Lead poisoning depends on the feeding habits and site conditions of different species and individual birds. Poisoned birds quietly seek cover, their wings droop and they have an unsteady gait. They usually die a solitary death and overseas studies show that they are quickly removed by predators.

Lead, however, is a very persistent poison. In North America predators have been dying from secondary poisoning. Since the 1960s this has accounted for about 500 of the endangered bald eagle, whose population numbers only 3000.

None of this is news to wildlife managers. In fact, way back in 1874 the news broke that ducks swallowed lead shot. A health officer in Galveston, Texas, seized two batches of ducks because it was feared the ducks had

ingested too many lead pellets, making it a health hazard for humans to eat them. The subject has been intensively studied there in the United States and elsewhere for the past 30-40 years. US Fish and Wildlife Service scientists estimated in 1976 that up to 2.4 million wildfowl die each year as a direct result of eating lead shot.

Shot densities

Similar studies have gone on in Europe and New Zealand. In 1974 Wildlife Service scientist Tom Caithness documented lead poisoning in ducks on Manawatu's Lake Pukepuke. He found male mallards and swans were particularly affected. Some birds were found with over 200 shot pellets in their gizzard. At Pukepuke, shot densities were between 23,000-50,000 per hectare per season. With a long history of hunting this could represent an accumulation of 8 million shot per hectare.

A 1985 survey by the Wellington Acclimatisation Society on Lake Wairarapa and its adjacent wetlands showed that 450 hunters used the wetlands on 4800 hunter days per year. These hunters shot 6.8-8.5 tonnes of lead shot per year into the lake and wetlands.

In November-December last year, Dr Deborah Pain (a British expert on lead poisoning in wildfowl) held seminars at the ICBP and IOC bird conferences on the lead poisoning problem. Her advocacy has encouraged the New Zealand Fish and Game Council to investigate more fully the incidence of lead poisoning in New Zealand wildfowl.

The preliminary work by Tom Caithness

and Bill Locke (Wallaceville Research Centre) indicated that scaup, mallard, Canada goose, pukeko and black swan were most susceptible. However it also suggested that rails and stilts are affected, and that harriers may be contracting secondary poisoning from eating lead-poisoned wildlife.

Skeet shooting also causes lead poisoning. Clay pigeon ranges often affect adjacent areas: in Scotland lead shot from skeet shooters poisoned vegetation on an adjacent moorland bog, and in Denmark, dairy cows have been poisoned by shot from a nearby skeet site. In Europe these have had lead shot densities of 20,000 per square metre!

The tragedy of lead poisoning of waterfowl is that it need not occur. Just as lead-free petrol, paints and waterpipes have been developed, so has lead-free shot. Steel and tungsten polymer shot has been used for almost two decades. Steel shot hunting areas were first introduced in some states in the United States in 1976 and this year a US-wide ban on lead shot comes into force. There are partial bans on lead shot in Canada and Denmark and many European hunting organisations have instituted voluntary lead shot bans.

Why not in New Zealand? Do we need to use lead shot? Obviously non-toxic alternatives to lead shot are available and with most of the North American hunting fraternity going over to steel shot, there is no shortage of supply. The wider use of steel shot has brought its price down to that of lead shot.

For some hunters the change over to steel shot may require them to spend \$500-\$1000 on a new gun barrel or they could continue using their existing shotguns with dearer tungsten polymer shot. However, in the overall budget of the average hunter, shotguns are not major expenses compared to clothing, maimai and consumables.

In 1979 the NZ Wildlife Service surveyed hunters in the Waikato's Whangamarino wetland. This survey shows that over the years the average hunter pursues his or her pastime, more than 80 percent of expenditure is on consumables (dog food, transport, food and ammunition), and only 4-5 percent is spent on a shotgun. For those hunters having to change guns or barrels, this one-off cost is not much more than their consumables for one season. For new hunters entering the sport, there would be no extra costs involved at all.

The solution to the problem lies with hunters and the Fish and Game Councils and their acceptance of the need to stop pouring lead into our wetland ecosystems, where it can be eaten by waterfowl. We took lead out of petrol to save ourselves; surely we can do the same for the birds. 🦆

New Zealand's only diving duck – the scaup – may be particularly susceptible to lead poisoning.

Photo: Peter Reese

