

Progress on lead-free shot in the UK, 1991

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Britain is, at last, moving positively on the replacement of lead shot, a matter which has been a somewhat contentious issue between conservationists and shooting interests.

Over the last few years, there has been a great deal of discussion, especially in the shooting press, about the problem of lead poisoning in wildfowl and the need to replace lead in shotgun cartridges and for coarse fishing weights. As long ago as 1979, The Wildfowl & Wetlands Trust, together with RSPB and the NCC and in collaboration with The British Association for Shooting and Conservation, carried out studies on the incidence of lead shot ingested by wildfowl, the lead levels in their tissues and the density and settle-ment of lead in wetland soils (Mudge 1983). Although the figures were rather imprecise, it was estimated that some 8000 Mallard *Anas platyrhynchos* may be dying from lead poisoning in Britain each year. At the same time, concern was growing about the widespread deaths of Mute Swans *Cygnus olor* poisoned by lead fishing weights. As many as 4000 swans may have been affected annually (Goode 1981).

Taking note of these studies, in 1983 the Royal Commission on Environmental Pollution report *Lead in the Environment* stated: "Lead shot from spent cartridges and lead fishing weights poison wildlife. We recommend that as soon as substitutes are available the Government should legislate to ensure their adoption and use" (RCEP 1983).

Lead poisoning of Mute Swans from lead fishing weights has been reduced substantially since the sale of the larger sizes was banned in 1987, and their use has since been banned in most areas of England and Wales, but not in Scotland. The problem of lead poisoning from shotgun lead remains. An international workshop, organised by the International Waterfowl and Wetlands Research Bureau in Brussels on 12-16 June

1991 (Pain 1992) attracted more than 100 people from 20 countries to discuss the problem and possible solutions. Delegates came from shooting organisations, government agencies and conservation bodies, and also included ballistics experts concerned with the manufacture and testing of ammunition. Surprisingly, although the problem has been recognised in the USA and Europe for at least half a century, this was the first time that such a gathering had been held.

There was not much disagreement that lead poisoning is a problem, though its effects are patchy. Surprisingly, it is important also for non-wetland birds. Most of the pressure for substitutes in the USA came because of poisoning of Bald Eagles *Haliaeetus leucocephalus* which had ingested lead while scavenging on unretrieved kills. The last three California Condors *Gymnogyps californianus* in the wild died from lead poisoning (Locke & Friend 1992). There are also potential problems for humans; in acid soils, dissolved lead from heavily shot areas is liable to leach into watercourses or be taken up by crops and thus pose a health risk. There was a consensus that as lead is a persistent poison it should be eliminated from all unnecessary uses.

The second session, which examined possible solutions, concluded: "The wise use of non-toxic shot is the only measure, other than the cessation of hunting, proven to be effective in restricting the availability of lead shot to waterfowl.....". Many years of trials in the USA had led to the conclusion that steel was the only acceptable alternative currently available. A recent innovation in Britain - tungsten shot - has now been tested and rejected because of problems of ballistics and safety when fired.

The replacement of lead with steel is not without its difficulties. Among those focused on at the meeting were the rela-

tive lightness of steel, which means that a larger charge is needed to gain the equivalent downrange velocity, thus inducing pressures which are dangerous in some guns, and its hardness which, combined with increased charge, leads to problems of gun barrel wear and bulging of the barrel.

The possibility of increased wounding was also highlighted by delegates. The killing power of steel is less than lead at the same load charge, which means that clean kills would be possible at reduced range. Unless there is an adjustment by the shooter, a larger proportion of birds would be hit but not brought down, or brought down and not retrieved by the shooter. The experience in the USA is that there is no conclusive evidence about the relative wounding rates of lead and steel.

There was general agreement that using lead in cartridges was not 'wise use' of the wildfowling resource and all steps should be taken to introduce lead-free shot and to phase out lead. Many countries, including Denmark and the Netherlands in Europe, led by the USA, had plans already agreed. The main feeling from the workshop was optimistic; the problem was capable of solution given determination and goodwill. It was felt that there was no reason why many countries should not ban lead for waterfowl shooting in a very few years, and for all shooting soon afterwards. However, the steel cartridges used in the USA were unsuitable for most guns in the UK because their barrels are thinner and more vulnerable to damage. The situation at the time of the meeting was that there were no lead-free cartridges available which were suitable and safe for use in the UK.

After the workshop, the UK Department of Environment formed a group to work on a planned programme of implementation. The Lead Poisoning in Waterfowl Working Group has representatives from shooting organisations, weapon and ammunition manufacturers and a proof and safety expert, as well as representatives of statutory and voluntary conservation interests. It was given a year to draw up recommendations for government after its first meeting in November 1991.

The diverse interests worked constructively together and, by the third meeting in May 1992, good progress had been made. The press releases following the second (January) and third (May) meeting of the group made statements to the following effect: viable non-toxic shot cartridges for most guns used in wildfowling can be commercially available within three years; gun safety and proofing requirements will be re-assessed once viable non-toxic cartridges have been developed; from September 1995, there will be an agreement between shooting and conservation organisations to phase out the use of lead over wetlands; subject to the achievement of these objectives, the aim is to eliminate the use of lead gunshot for 12-bore shotguns in wetlands by September 1997.

Problems remain; for example, no lead-free ammunition is being developed for use in guns other than 12-bore. However, the use of these in wildfowling is thought to be minor. A constructive attitude by shooters, and a realisation by manufacturers that there will be a market for non-toxic shot in the near future, mean that we are on the way to seeing lead phased out of use over wetlands and, eventually, for all shooting.

References

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