

ECHA workshop on lead in hunting and sports shooting

Meeting summary

Date 10 February 2020, 13:00 until 11 February 2020, 13:00
Location ECHA conference centre

The workshop was intended to facilitate a technical and scientific discussion on various issues related to the use of lead in hunting and shooting. The discussions will serve as an input into the investigation on the need for a REACH restriction on these uses that ECHA is carrying out at the request of the Commission.

The workshop did not cover the use of lead in recreational and commercial fishing for which a separate event will be organised later this year.

Given the breadth and complexity of the various issues that were up for discussion, ECHA invited a wide range of stakeholders to the workshop including nature/conservation organisations, academics, hunting organisations, sports shooting associations, ammunition manufacturers, and industry associations as well as relevant governmental and international organisations.

The first day of the programme focused on the viewpoints of different stakeholders with regard to the use of lead in hunting, sport shooting activities and its impact on wildlife and human health (via meat consumption). The second day focussed on substitution to lead-free ammunition and risk management measures for containing lead at sports shooting ranges.

The presentations represent the views of the authors only. Publication of these presentations does not necessarily mean that ECHA endorses them. The information discussed and gathered during the event will be taken into account in the preparation of the restriction proposal.

Day 1 - Summary

Presentations 1 and 2 - Policy context

ECHA and the Commission gave an overview on the general policy context. It was highlighted that the objective of any REACH restriction on the use of lead in ammunition would be to make hunting and sports shooting safer for human health and the environment. It was emphasised that neither the Commission nor ECHA have any intention to prevent hunting or sports shooting as leisure activities.

Presentation 3 - Use of lead ammunition for hunting

FACE (David Scallan) introduced the governing international conventions (AEWA¹, CMS² and IUCN³) and highlighted a number of issues that he considered that the assessment of ECHA should cover, such as:

- Updated harvest date for bird hunting will soon become available during the EU reporting process under the Birds Directive (Article 12) – 2020.
- Concerns from the hunting community were expressed on how ECHA (in particular RAC) would deal with the concept of risk and to what extent SEAC would take into account proportionality (relative costs and benefits).

After the presentation, the following issues were raised by the participants:

- Some participants raised concerns on the effectiveness of steel shot compared to lead shot, arguing that using steel shot would not result in the same effectiveness as lead shot. Other participants argued that more recent developments in steel shot have greatly improved its effectiveness and that field studies have demonstrated this.
- Impact of lead-free ammunition on firearms, in terms of internal ballistics. This issue was raised in particular in the context of older guns where there could be issues in using steel shot (steel shot requires higher pressure and not all old guns can withstand that)
- Impact on human health of lead shot (via consumption of game meat). ECHA was asked how this would be taken into account in the analysis. ECHA responded that it has experience with evaluating human health issues related to lead and would see to what extent that would be used in the context of lead in hunting and sports shooting.
- ECHA was asked to make a proper evaluation of the toxicity and ecotoxicity of alternatives, so as to make sure that lead would not be replaced with equally polluting materials. ECHA responded that it would do so and added that it is important to keep in mind that ECHA will be evaluating the net-benefits of any proposed restriction
- Several participants raised concerns on the safety of hunters in terms of the risk of ricochet in rocky/mountain areas. It was argued that steel shot would result in a greater risk of ricochet, resulting in a higher risk of injury to hunters. In response some participants raised that all shot materials can ricochet. There is evidence that steel ricochets slightly more than lead, but this is in a more predictable path. It was argued that an unsafe shot with lead is an unsafe shot with steel.
- The availability of lead-free ammunition. Some participants claimed that lead free ammunition is at the moment not available throughout the EU. Other participants argued

¹ In 1995 called on Parties to "... endeavour to phase out the use of lead shot for hunting in wetlands by the year 2000

² The Conference of Parties in 2014 called on all Parties to "*Phase-out the use of lead ammunition across all habitats (wetland and terrestrial) ...*" Resolution 11.15 - *agreeing that it is for each Party to determine whether or how to implement the recommended actions, considering the extent and type of poisoning risk*

³ "A path forward to address concerns over the use of lead ammunition in hunting" (WCC-2016-Res-082-EN)

that if the market would demand it (and having a regulation in place that requires the use of lead-free ammunition) supply would follow. This has been observed after the introduction of other regulations on the use of lead in hunting.

Presentation 4 - Use of lead ammunition for sports shooting (competitive target shooting)

Phillip Taylors (Eley sports Ltd.) presented information on different types of competitive sports shooting, demonstrating the variety of types of competitive sports shooting.

Examples were given on the standards applied in competitive sports shooting. It was also specified that precision target shooting is undertaken entirely with lead ammunition (0.22 Long Rifle and 0.17 for air gun and air rifle).

After the presentation, the following issues, essentially related to lead-free ammunition, were raised by the participants:

- Precision/accuracy of the performance in competitive sport shooting. It was argued that the required precision in sports shooting cannot yet be met alternative materials.
- Compatibility with guns, the guns that are currently used for sports shooting are optimised to the use of the before mentioned calibres. Any change in calibres and/or bullet material would lead to extensive cost to sports shooters.
- Challenges in manufacturing, current machinery is optimised to the use of lead, there would be challenges in finding lead-free ammunition with similar properties as lead (high density/low hardness/high ductility).
- Possibility to host in the future international sport events in the EU.
- The participants highlighted and discussed also the differences between competitive sports shooting, and sports shooting in general. The training of young athletes was also mentioned as an issue for ECHA to consider.

Presentation 5 - Impacts of lead ammunition on wildlife

Alessandro Andreotti (ISPRA) presented on how the use of lead in ammunition affects wildlife, ranging from increased mortality in species to increased sub-lethal effects. He made the case for using lead-free ammunition:

- Many migratory terrestrial bird species ingest lead ammunition in Europe.
- The incidence of ingestion of lead ammunition is relevant for birds of prey, granivorous (seed eating) birds and scavengers. Observed effects, include mortality, reduced reproductive capability and immune system effects. Lead poisoned birds are also more susceptible to being hunted.
- Birds of prey and scavengers are particularly vulnerable owing to their feeding behaviour. These species are known to consume the discarded viscera⁴ of large quarry (containing lead fragments) after it is left in the environment by hunters (after field dressing large mammalian quarry, such as deer). Birds of prey are also known to consume embedded lead fragments in the tissues of their food).
- Lead poisoning caused by lead ammunition is undermining the efforts devoted (over many decades) to conserve endangered birds of prey and scavengers.

After the presentation, the following topics were raised by the participants:

⁴ the internal organs in the main cavities of the body, especially those in the abdomen, e.g. the intestines.

- Extent of the issue for European wildlife and biodiversity.
- Toxicity of lead-free ammunition vs toxicity of lead for the wildlife.
- Recognising the need for particular conservation efforts for migratory birds of prey, the Raptors Memorandum of Understanding⁵ was established in 2008 as a daughter agreement under the United Nations Environment Programme, Convention on Migratory Species. The European Union is a signatory party.

Presentation 6 - Impacts on lead in food and the EFSA's scientific opinion

Hans Steinkellner (EFSA) provided an overview of the content of the EFSA scientific opinion on the presence of lead in food published in 2010:

- The consumption of game meat in the general population is low in the EU. However, there are groups, such as hunter families, that frequently consume game meat and are more exposed to lead.
- Even low lead exposure to lead might contribute to the development of effects in adults (kidney, blood pressure) and especially in children (irreversible neurological effects leading to IQ loss).

After the presentation, the participants discussed the link between the EFSA study and the presence of lead in (hunted) game meat, as well as the recommendations on game cutting to limit the contamination by lead.

Panel discussion on day 1

After the plenary presentations a panel discussion, led by the main speakers of day 1 and several other speakers, was held and all participants discussed in more detail the various topics that were presented during the plenary presentations.

The key issues were:

- Where lead cannot be easily replaced (e.g. in sports shooting) the possibilities of containing lead should be further explored.
- The evidence suggests that lead affects wildlife in many ways having both lethal and sub-lethal effects⁶. Species affected by sub-lethal effects can become more vulnerable to other risks, including diseases like avian flu, which may represent a concern for public health too.
- Many migratory bird species ingest lead ammunition while moving through different countries in Europe. Therefore, a country-by-country approach is unlikely to substantially reduce the ingestion of lead.
- Special groups such as hunter families that frequently consume game meat face a higher risk of detrimental health effects.

ECHA reiterated that the investigation would consider the issues raised and that no decision on the need for a restriction has yet been taken. ECHA confirmed that military and similar uses are not considered as part of the request from the Commission. Issues regarding civilian self-defence would need to be assessed, though. ECHA confirmed that although lead had already been indicated as risk to birds and humans in previous restrictions, other factors would be taken into account such as the availability and toxicity of alternatives. ECHA also confirmed that a number of Member States had requirements for sports shooting, in particular sport shooting grounds, and that these would be further investigated.

⁵ <https://www.cms.int/raptors/en>

⁶ weight loss altered behaviour, reduced fertility, increased susceptibility to other causes of mortality (predation, collision...)

Day 2- Summary

Presentation 7 - Technical standards for firearms and ammunition

André Chabotier (Commission internationale permanente pour l'épreuve des armes à feu portatives (CIP)) presented the CIP, and its role in deriving standards for civil firearms and ammunition in CIP member countries. He explained how the CIP standards are the *de jure* rules on civil firearms in CIP member states⁷ and are designed with a view to the safety of shooters. CIP is working together with the US association SAAMI in the development of international standard to address the safety of the shooters.

The CIP governs the internal ballistics of firearms and provides technical standards for (among others) max pressure, twist rate, size and weight of calibres with an aim of ensuring safety for shooters. The CIP does not provide any standards with regard to external ballistics, i.e. the behaviour of projectiles (single or multiple such as shot) after having left the barrel.

André Chabotier highlighted how the use of lead-free ammunition poses challenges in existing guns due to technical changes needed in ammunition specifications (size of projectiles needed to compensate for lower density of copper, deeper seating of bullets requiring increased pressure). Despite those challenges, he indicated that CIP standards already exist for lead-free ammunitions that are currently used in its European country-members.

Presentation 8 - Using lead-free ammunition for hunting

Niels Kanstrup's (Danish Academy of Hunting, University of Aarhus) presentation was about the use of lead-free ammunition in hunting, and more particularly on the experience in Denmark where a total ban on lead hunting is in place since 1996. He suggested that:

- Lead free ammunition can be used safely.
- Lead free ammunition can be used effectively in hunting.
- Lead free ammunition is available at affordable prices.

In the discussion that followed a number of elements were brought forward that would require ECHA's attention during the preparation of the restriction proposal:

- Impact on wildlife in terms of being able to ethically kill animals. Concerns were raised on longer escape distances that could in some cases result in unnecessary animal suffering.
- The effectiveness of steel shot in terms of external ballistics. It was pointed out that the lethality tables developed by Tom Roster⁸ could help in guiding hunters on how to use steel shot. Various other resulting impacts from using steel ammunition were discussed, including the compatibility with older guns.

Presentation 9 - Application of risk management measures in sports shooting

Darya Yablonskaya (International Sport Shooting Federation (ISSF)) outlined how in different types of sports shooting ranges (enclosed, partially enclosed) practical risk management measures can be taken to efficiently prevent environmental (groundwater and land contamination) impacts of lead. This includes, for example, the removal and cleaning of contaminated soils.

⁷ European members: Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, Slovakia, Spain, United Kingdom

Other members: Chile, Russia, United Arab Emirates

⁸ these tables summarise the waterfowl lethality data bases for certain U.S. steel versus lead waterfowl shooting tests, see for example: <https://gf.nd.gov/hunting/nontoxic-shot-lethality>

According to Darya Yablonskaya, the leaching of lead to ground water can occur but is a function of the pellet dissolution rate which might be low depending on the type of soils (e.g. pH). Some results of experiments carried out by the speaker were presented to the audience.

Presentation 10 - Development of best available techniques (BAT) for shooting ranges

Lotta Jaakola (FSSF) gave a presentation on environmental permitting of shooting ranges in Finland

The presence of lead on shooting ranges could (without risk management measures) pose a threat to the environment when it comes into contact with water and is leached into groundwater. In order to prevent such risks, measures are taken to protect the environment from lead (which typically accumulates near targets).

The presentation highlighted how environmental permitting for sports shooting ranges in Finland is governed by a BAT (Management of the Environmental Impact of Shooting Ranges, Finnish Ministry of Environment (2014))⁹:

- Most sites in Finland require an environmental permit. However, this may not necessarily apply to small ranges (e.g. < 10 000 shots/year) to which a notification duty exists. This notification may trigger a further environmental assessment though.
- The BAT document explains how risk management measurements and best techniques can be applied to minimise contaminations of the environment surrounding shooting ranges.

It was discussed that site specific risk management measures could be an effective way to manage and control possible impacts of lead at shooting ranges.

Panel discussion on day 2

In the panel discussion led by the main speakers of day 2 and several other speakers the key issues on ammunition alternatives were:

- Steel shot is classified as either standard or high performance. If a gun is nitro proofed (i.e. it can fire modern lead loads) then it will be safe to fire standard performance steel. The use of lead free ammunition is not always possible in all guns, specifically in old guns and alternative (lead-free) ammunition may not yet meet all technical requirements with respect to precision this is particularly the case for small calibre rifles.
- The range of available alternatives is larger in countries that are not a member of the CIP, as in these countries ammunition from the US can be obtained which have rules that are more geared towards the use of steel shot.
- The barriers to substitute lead in ammunition are not purely technical but relate also to rules and regulations (e.g. mandating (indirectly) that lead needs to be used).

With regard to the shooting ranges, the participants discussed that:

- The presence of lead on shooting ranges could (without measures) pose a threat to the environment when it comes into contact with water and consequently leaches into groundwater.
- In shooting ranges (both enclosed and partially enclosed) practical risk management measures can be taken to prevent environmental impacts of lead. For most sites (albeit not for small sites), site specific risk management practices could be an effective way to manage and control possible impacts of lead at shooting ranges.

- Best Available Techniques (BAT) documentations could be further improved to take into account the protection of birds feeding at shooting ranges (note that these elements are dealt with in some documents, e.g. that of the US EPA.)
- The participants discussed that the BAT for shooting ranges is a good starting point to identify RMM to minimise the release of lead to water/ground water and should be further promoted at the European level. Still some participants noted also that risks to wildlife (e.g. ingestion of lead pellets in shooting ranges by bird) are currently not addressed by the BAT. Some participants indicated that complementary measures (e.g. on the type of plants to be grown on shooting range) such as the one defined in the US EPA guidance for shooting range could be looked at to fill this gap.
- The participants highlighted again the differences between competitive sport shooting and recreational sport shooting. They also emphasised the diversity of sport shooting activities and settings which would have to be taken into account when designing measures to minimise lead emissions.

Conclusion of the workshop

ECHA thanked the participants for active participation and concluded the discussion as follows: it had become even more evident that the diversity of applications of lead in shooting means that the various uses of lead in shooting need to be addressed in a differentiated manner. It seemed clear that the risks related to various shooting activities are different and that the technical and economic feasibility of substitution possibilities varied. This implies that ECHA will need to analyse the risk reduction and the socio-economic impacts of different restriction options and would need stakeholders to provide pertinent information for this. The workshop was thought to be a good start in this process.

Annex:

Programme:

Monday

Session 1	Setting the scene	
12:30 -13:-00	Registration and Coffee	
13:00 – 13:20	Welcome, housekeeping rules, introduction and objectives	Mark Blainey, European Chemicals Agency (ECHA)
13:20 – 13: 40	Policy context	Patrizia Tosetti, European Commission, DG GROW
13:40 – 14:00	Earlier work from ECHA on lead and presentation of the current mandate	Christiaan Logtmeijer, ECHA
Session 2	Current situation – case studies	
14:00 – 14:10	Introduction	ECHA
14:10 - 14:30	Lead in Ammunition: Perspectives from the European hunting community	David Scallan, Secretary General, FACE (European Federation for Hunting and Conservation)
14:30 - 14:50	A view point from competitive target shooting	Phillip Taylor, Technical director Eley Ltd
14:50– 15:10	Scientific Opinion on Lead in Food – relevance for game meat	Hans Steinkellner, European Food Safety Authority (EFSA)
15:10 – 15:30	Effects of lead ammunition on wildlife	Alessandro Andreotti, Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA)
Coffee		
16:00 – 17:30	Discussion and questions - understanding of current situation - effectiveness of existing risk management	Panel 1

Tuesday

Session 3	Socio-economic impacts of possible restriction on hunting and outdoor sport shooting activities	
9:00 – 9:20	Welcome and day 2 objectives	Matti Vainio, ECHA
9:20 – 9:40	Technical standards for firearms and ammunition	Andre Chabotier, Comité International des épreuves des armes (CIP)

9:40 - 10:00	Using lead free ammunition in practice	Niels Kanstrup, Danish Academy of hunting / Aarhus University
10:00 – 10:20	Risk management measures in sports shooting	Darya Yablonskaya, International Sports Shooting Federation (ISSF)
10:20 – 10:40	Best available technique for shooting ranges	Lotta Jaakkola, Finnish Shooting Sport Federation (FSSF)
Coffee		
11:00 – 12:30	Discussion and questions -drivers and barriers for substitution -consequences of a restriction	Panel 2
12:30 – 13:00	Summing up – next steps	ECHA

List of participants.

Name	Organisation
Tosetti Patrizia	COM- DG Grow
Senger Hugues	Fédération Française de Tir
Sebastiani Giuliana	AFEMS
Silvis Mauro	AFEMS
Gotzen Klaus	Association of manufacturers of hunting and sport weapons and ammunition (JSM)
Ellis Matthew	BASC/ FACE
Van den Bossche Willem	BirdLife Europe and Central Asia
Lampila Petri	BirdLife Finland
Chabotier Andre	C.I.P. - Commission Internationale Permanente
Knoebel Bernhard	Carl Walther GmbH
Kessler Roland	CIC - International Council for Game and Wildlife Conservation Headquarters
GRUBER Gerhard	CIP / RUAG
Carlisle Sam	Countryside Alliance
Kanstrup Niels	Danish Academy of Hunting, Aarhus University
Moehring Tillmann	Deutscher Jagdverband
Taylor Philip	Eley Limited
Steinkellner Hans	European Food Safety Authority (EFSA)
Scallan David	FACE
Partanen Jussi-Matti	Finish Hunters association
Isomursu Marja	Finnish Food Authority
Lantee Anne	Finnish Shooting Sport Federation
Jaakkola Lotta	Finnish Shooting Sport Federation
Mader Anneluise	Germany
Bitterling Felix	IBU (International Biathlon Union)
Boygard Tore	IBU (International Biathlon Union)
Ratner Alexander	International shooting Sport Federation
Campriani Niccolo	IOC
Gladkikh Irina	IOC
Andreotti Alessandro	ISPRA - Italian Institute for Environmental Protection and Research
Yablonskaya Daria	ISSF
Leshchikova Anna	ISSF
Palinkas Jean-Francois	ISSF-FITASC
Swift John	Lead Ammunition Group
Pitkänen Janne	Ministry of Agriculture and Forestry, Natural Resources Department, Unit for Game and Fisheries
Blaha Karel	Ministry of Environment of the Czech Republic
Bartosek Jan	Ministry of Interior of the Czech Republic
Lintula Pekka	Nammo Lapua Oy and C.I.P.
Curley Dan	National Association of Regional Game Councils (NARGC)Is
Fenlon Michael	National Association of Regional Game Councils (NARGC)Is
Patterson Richard	SAAMI
Suvilahti Aki	Sako Ltd.

Kuitunen Tero	Suomen riistakeskus /Finnish wildlife agency
Widemo Fredrik	Swedish University of Agricultural Sciences
Mikander Nina	UNEP/AEWA Secretariat
Cromie Ruth	WWT