General comments on the European Chemicals Agency (ECHA) public consultation on the Annex XV report on the use of lead in gunshot outside of wetlands, bullets in any terrain and in fishing tackle.

23 September 2021,

The Vulture Conservation Foundation's work on reducing the risk of contamination and exposure to lead:

The Vulture Conservation Foundation (VCF) is working actively to minimise the threat of lead contamination and toxicity to vultures and other avian scavengers with several actions within some of the LIFE projects that we are involved with as well as in other non-EU funded projects. These include promoting voluntary testing of non-lead ammunition by local hunters in the French Alps and Cevennes, as well as in Bulgaria (GYPHELP, GYPCONNECT, LIFE REVultures) and analysing levels of lead in the corpses of dead vultures (LIFE Vultures Return back to LIFE, LIFE RUPIS, GYPCONNECT, LIFE REVultures).
The VCF has also been the lead partner on proposed EU LIFE-funded project – "LIFE AlpsLeadFree - Moving towards the use of non-lead rifle ammunition for the benefit of the Bearded Vulture in the Alps (LIFE19 NAT/NL/001094 and LIFE20-NAT_NL_001240)"- which have been unfortunately unsuccessful. These projects aimed to significantly reduce the risk of lead poisoning in Bearded Vultures in the Alps by engaging with the hunting associations and protected area authorities to promote the use of non- lead ammunition through a variety of means. The lack of success in this expensive EU-funded project illustrates that voluntary measures are not going to address risks from lead ammunition and the proposal to regulate its use in the Annex XV is essential for this.

General comments on the ECHA call for evidence.

The Vulture Conservation Foundation (VCF) welcomes the Annex XV report on the use of lead in gunshot outside of wetlands, bullets in any terrain and in fishing tackle. The VCF hopes that this will ultimately lead to further restrictions of the use of lead ammunition across all habitats in Europe, not only wetlands, facilitating the removal of an unnecessary source of lead pollution in the environment.

VCF VULTURE CONSERVATION FOUNDATION

1-Impacts of lead ammunition on wildlife and human health

Raptors: a group at risk

The ingestion of lead is the main cause of elevated blood lead levels that results in lethal and sub-lethal toxicity for many vultures and raptors[1,2]. Vultures and facultative scavengers ingest lead either directly when they consume hunted carcasses that contain ammunition fragments[3]; from the offal left in the field by the hunters[4]; or indirectly from lead incorporated by the animals on which they feed[5]; or even from topsoil at feeding sites[6].

Lead ammunition is an important source of mortality for raptor species throughout Europe. For example, a recent review examining 114 studies that reported data for 30 raptor species across Europe showed high occurrence of lead contamination, especially in scavengers[7]. Lead poisoning from ammunition sources played a major role in the decimation of California condor populations[8]. Toxicants including ammunition-derived lead also caused a major decline (31-43%) in red kite *Milvus milvus* populations in Spain, one of the major strongholds for this species in Europe[9].

Such mortality rates hamper decades of conservation efforts and funding aimed at restoring raptor and vulture populations in Europe. The return of the Bearded Vulture *Gypaetus barbatus* in the Alps, for example, is often cited as a conservation success. Yet this population is still vulnerable (less than 260 breeding pairs in the European Union) and lead intoxication was detected in >13% of all mortalities of fledged Bearded Vultures in the Alps between 2005-2018 (International Bearded Vulture Monitoring network, unpublished data). We request that the costs of conservation efforts are factored into the impact of lead ammunition in Europe.

Other predator species

Recent research suggested that lead contamination might also impact mammalian scavengers and predators[10]. For example, Fuchs et al.[11] showed life-long exposure to lead in Scandinavian brown bears *Ursus arctos* may have negative consequences for survival and reproductive success. Large predators like the brown bear or the grey wolf *Canis lupus* are threatened species enjoying some degree of legal protection in all European countries. Despite conflicts, the four species of large carnivores have recovered part of their former European distribution during the last 50 years[12]. However, lead ammunitions are still allowed in most areas occupied by these predators despite little knowledge of their impact on these species. **This situation highlights the need to reduce globally lead contamination if the EU is serious about enabling large carnivores to fully recover.** Their recovery is an important step to restore resilient ecosystems in Europe and will also benefit threatened avian scavengers.

Vultures in global decline

Globally, bird populations are declining due to a combination of factors, i.e. habitat loss, overhunting, invasive species [13,14]. Vultures are the most threatened avian functional guild on the planet, with 73% of the 22 species found worldwide being threatened with extinction, mainly due to dietary toxins such as poisons and harmful veterinary drugs[15]. **For example, the population of Egyptian vulture *Neophron percnopterus* has declined by 50% over the last three generations in Europe, and the species has been listed as Endangered at a global level by the IUCN red list[16]**. Vultures are now being targeted for conservation action in the Convention on Migratory Species Multi-species Action Plan to Conserve African-Eurasian Vultures (CMS-MsAP), which has also been endorsed by the EU and reducing the threat of lead toxicity has been identified as a priority across the range states. The EU´s own international action plans for the Cinereous Vulture *Aegyptius monachus,* and for the Bearded Vulture, also include lead as a main threat and actions to eliminate lead poisoning as priority conservation actions[17,18]. **The potential effects of lead on vulture demography could be a silent threat causing long-term population declines that are difficult to detect[19,20]**. Therefore, further restrictions on the use of lead ammunition in all terrestrial habitats will directly contribute to this action by reducing the risk of exposure to lead for vultures across their European ranges, the benefits of which are summarised below.

In addition, **lead poisoning also affects animal welfare**, **which is a fundamental value of the EU** (art. 13 of the Treaty on the Functioning of the European Union) and an important issue for its citizens. Clinical alterations in the case of acute poisoning include blindness, paralysis of wings and legs and convulsion resulting in a long and painful agony for affected vultures[21].

Impacts on human health

Finally, there are great risks to human health from lead contamination[22]. Similarly to scavengers, one of the major routes of exposure to lead for humans occurs through the consumption of meat from wild animals shot with lead, resulting in increased blood lead levels. For example, more than 10 000 British children of 8 years old or younger are at **potential neurodevelopmental risk (IQ reduction)** from ammunition-derived lead in game meat in the live-quarry shooting community[20]. **Cardiovascular effects and nephrotoxicity in adults have also been reported**. These risks to human health merit careful consideration when assessing the costs and benefits of banning lead ammunition[23,24].

Vultures and raptors are long-lived species at the top of the food web and are severely affected by lead poisoning[25]. These characteristics make them valuable sentinels for monitoring environmental lead contamination[4,26] and therefore **a warning system of potential hazards to human health.**

2-Banning lead ammunition is feasible

In response to the environmental impacts mentioned previously, lead ammunition has been banned in some circumstances in order to reduce environmental contamination and to enable threatened species to recover. For example, a ban on lead ammunition was instrumental in reducing lead exposure in vultures and raptors in the USA[27] and a partial ban in Spain resulted in reduced lead ingestion by wildfowl and decreased risk of exposure to lead for game meat consumers[28]. Denmark and the Netherlands banned the use of lead gunshots decades ago[29]. **These examples demonstrate that restrictions can be enforced effectively and that hunters are able to use non-lead ammunitions to the same effect[30].**

Pain et al.[22] estimated that **the continued use of lead ammunition associated with impacts on wildlife, people and the environment, cost €383 million–€960 million per year across the EU**. Hunters constitute a small minority of the European population (<2%), and an increasing number of people value nature conservation across Europe. According to a Standard Eurobarometer survey conducted in June-July 2021, European citizens identified the environment as their second main issue at the EU level after the economy and despite the COVID-19 pandemic[31]. Altogether **these data suggest that a majority of citizens would support and even welcome the lead ban at the EU level**.

Assuming the evaluation undertaken by ECHA is inclusive of all the costs and benefits, the long-term economic, environmental and human health benefits of restricting the use of lead ammunition for hunting and shooting activities will surely outweigh the costs. As a result, the sustainability of retaining lead ammunition for hunting and recreational purposes is being seriously questioned[23,32] particularly in areas with increased risk of exposure to lead ammunition[1,2,5,8].

3-Additional benefits of restricted use of lead ammunition in the context of avoided secondary poisoning of vultures and other avian scavengers.

The positive contributions of predators and scavengers to environmental health and human well-being are increasingly being recognised, despite historically being perceived negatively by many sections of society[33]. As the main consumers of carrion in many ecosystems, **vultures play a key role in maintaining nutrient recycling processes, regulating populations of competing scavengers and reducing the development and spread of certain diseases, providing valuable ecosystem services to humans[15,34,35]**. If vulture populations continue to decline, trophic cascades are expected to occur, with increases in populations of mammalian predators and scavengers and potential consequences for human health as carrion persists for longer[36]. In the European context vultures play a crucial role in removing livestock carcasses from both intensive and extensive farming systems, reducing the financial costs and carbon footprint that would be required to dispose of the carcasses in their absence[37,38].

As a result, vultures are highly valued by farmers, hunters and other stakeholders including tourists[39,40]. A recent study revealed that tourism activities linked to avian scavengers at Spanish feeding sites alone provide a relevant income (almost US $5 million per year) to the Pyrenean community[41]. An ongoing LIFE project co-led by the VCF in Cyprus (LIFE with vultures: LIFE18 NAT/CY/001018) also confirmed the role of vultures as contributors to ecosystem services. Main ecosystem service contributions are a result of carrion consumption, which could potentially **reduce carcass collection costs by 43-61% in terms of greenhouse gas emissions and financial expenditure**. In addition, Griffon Vultures offer in Cyprus a range of cultural services identified by this study, including the **potential contribution of vulture-based activities to tourism (potentially generating €648,818 revenue each year)**, education and research as well as local identity and cultural heritage (VCF, unpublished data). Restricting the use of lead ammunition is therefore an important step towards restoring predator and scavenger populations and the ecosystem services that they provide across Europe.

Ultimately, the VCF calls for and supports widespread restrictions of lead ammunition to be implemented as soon as possible throughout vulture ranges, particularly in high-risk areas identified through robust monitoring and research[5].

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