BirdLife MALTA

BirdLife Malta's general comments on the Committee for Socio-Economic Analysis (SEAC) Draft Opinion

29th August 2022

A complete ban of lead in outdoor hunting, sports shooting and fishing is a long-awaited and required step to preserve the natural environment (including by contribution to the EU "zero emission" target) and to protect human health. The detrimental effects of lead are well-investigated and proven, and the need to ban its use in mentioned activities is absolutely proportionate and relevant.

There is plenty of evidence proving the fact of high toxicity of lead for wildlife. Some studies arguing this are listed below:

- Hivert L.G., and others, High blood lead concentrations in captive Tasmanian devils (Sarcophilus harrisii): a threat to the conservation of the species?[1]
- Michelle A. North, and others, Suspected lead poisoning in two captive cheetahs (Acinonyx jubatus jubatus) in South Africa, in 2008 and 2013[2]
- Sources and Implications of Lead Ammunition and Fishing Tackle on Natural Resources[3]
- Deborah J. Pain, Rafael Mateo, and Rhys E. Green, Effects of lead from ammunition on birds and other wildlife: A review and update[4]
- William L. Anderson, Stephen P. Havera and Bradley W. Zercher, Ingestion of Lead and Nontoxic Shotgun Pellets by Ducks in the Mississippi Flyway5
- Pandiyan J. and others, Probing of heavy metals in the feathers of shorebirds of Central Asian Flyway wintering grounds[6]

The recent example of death of captive dolphins in Malta demonstrates that lead poses a lethal threat in cases of direct ingestion[7]. According to WWT data, 34% of living birds had elevated blood level lead in 2010/2011. Moreover, it is estimated that lead poisoning became the reason for death for as much as 28% of whooper swans between the period of 1971-2010.

It is stated in the draft opinion, that 57% of lead is dispersed in the environment from sports shooting. Given such a high level, we believe that the use of lead in sport shooting should be restricted at least at the scale as in hunting. The recovery of lead at shooting ranges is a

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[1] High blood lead concentrations in captive Tasmanian devils (Sarcophilus harrisii): a threat to the conservation of the species? - Hivert - 2018 - Australian Veterinary Journal - Wiley Online Library
[2] Suspected lead poisoning in two captive cheetahs (Acinonyx jubatus jubatus) in South Africa, in 2008 and 2013 | North | Journal of the South African Veterinary Association (aosis.co.za)
[3] Lead08-1.pdf (wildlife.org)
[4] Effects of lead from ammunition on birds and other wildlife: A review and update - PMC (nih.gov)
[5] Ingestion of Lead and Nontoxic Shotgun Pellets by Ducks in the Mississippi Flyway on JSTOR
[6] Probing of heavy metals in the feathers of shorebirds of Central Asian Flyway wintering grounds | Scientific Reports (nature.com)
[7] Three Mediterraneo dolphins died of lead poisoning: source (timesofmalta.com)

complicated process and depends a lot on the conditions of the range itself (flatness, soil type, vegetation, etc.), and the conditional derogation proposed in the draft opinion is not of a technical character and should not be considered favourable, since it will create additional complications in terms of implementation and costs. Moreover, this will bring along further residual risks for the environment. In Malta, a number of shooting ranges lie closely to or within agricultural areas, posing a permanent risk of contamination by lead spill into the ground water/soil, and therefore putting pressure on human health and natural environment. The contamination of soil by heavy metals is already a serious threat to Maltese agriculture. A study (2020)[7] looking at the concentrations of a number of heavy metals in the Maltese soil have found that "the highest concentration of lead was observed in the Southern Harbour and was statistically significantly (ρ-value<0.05) different from the rest of the districts with a concentration of 249.51 mg/kg. Lead concentration was found in 25% of the soils with values of more than 100 mg/kg. The natural concentration of lead in the soil is 5 mg/kg, and the threshold value is 60 mg/kg. The lower guideline level is stated to be 200 mg/kg, and if the limit is exceeded health risks are predicted".[8]

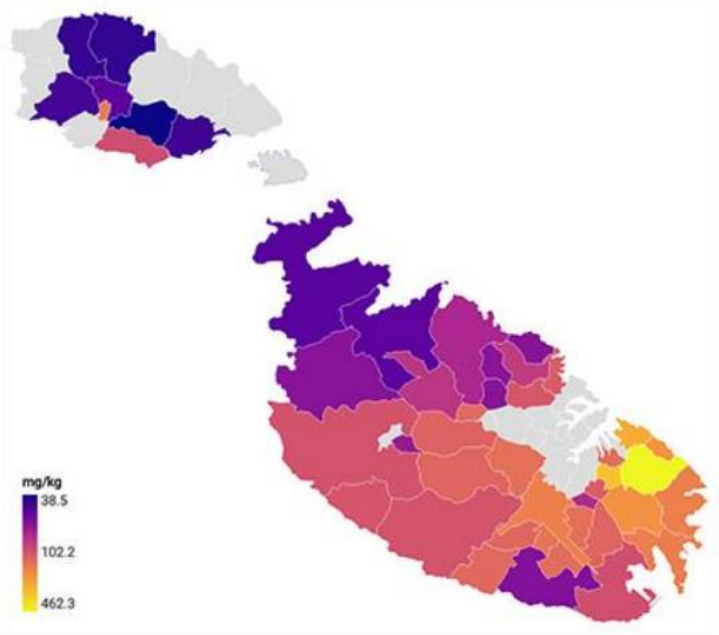

Figure 1. Lead concentrations in soil in the Maltese Islands. Source: Briffa J. Heavy Metals in Maltese Agricultural Soil , 2020

It is known that, if clay content in the soil is high, pH is more acidic and organic matter is high, then metal tends to bind much more to the soil. Less elemental elements are found in the soil when it is more acidic as the elements tend to become more soluble and thus leach further down in the ground where the roots do not reach thus resulting in nutrient deficiency to the plant (refer to the same study). Furthermore, after appearing in the soil, lead can change into other forms due to the action of sunlight, air and water, as well as via biochemical reactions depending on the conditions of the soil. Surface water run-off can mobilize the lead particles during rains which in turn can lead to the "downward movement of lead and the fixation of

[8] 20MBIOCH001.pdf (um.edu.mt)

lead in soil by leaching into various phases of soil (or run-off to the sea). This decreases the possibility of lead exposure but increases the possibility of lead getting into the food chain by plant uptake and making it difficult to remove the lead from soil".[9] Furthermore lead content ending up in the marine environment is more likely unquantified for the Maltese Islands.

According to the Best Management Practices for Lead at Outdoor Shooting Ranges[10], "at pHs above 7.5, very little lead remains in solution", meaning that the ideal soil pH for shooting ranges is 6.5 to 8.5 which will keep lead from dissolving and spreading in the soil. Anything lower than these Ph will contribute to lead exposure. The Maltese State of the environment report 2018[11] demonstrates a concerning tendency when it comes to soil acidity: 65% of the locations assessed in 2013 were more acidic than the same locations in 2003. The average pH of all the sites assessed in 2003 was 8.02. The pH for the sites assessed was 8.01 in 2003 and 7.92 in 2013 (please see the Figure 2).

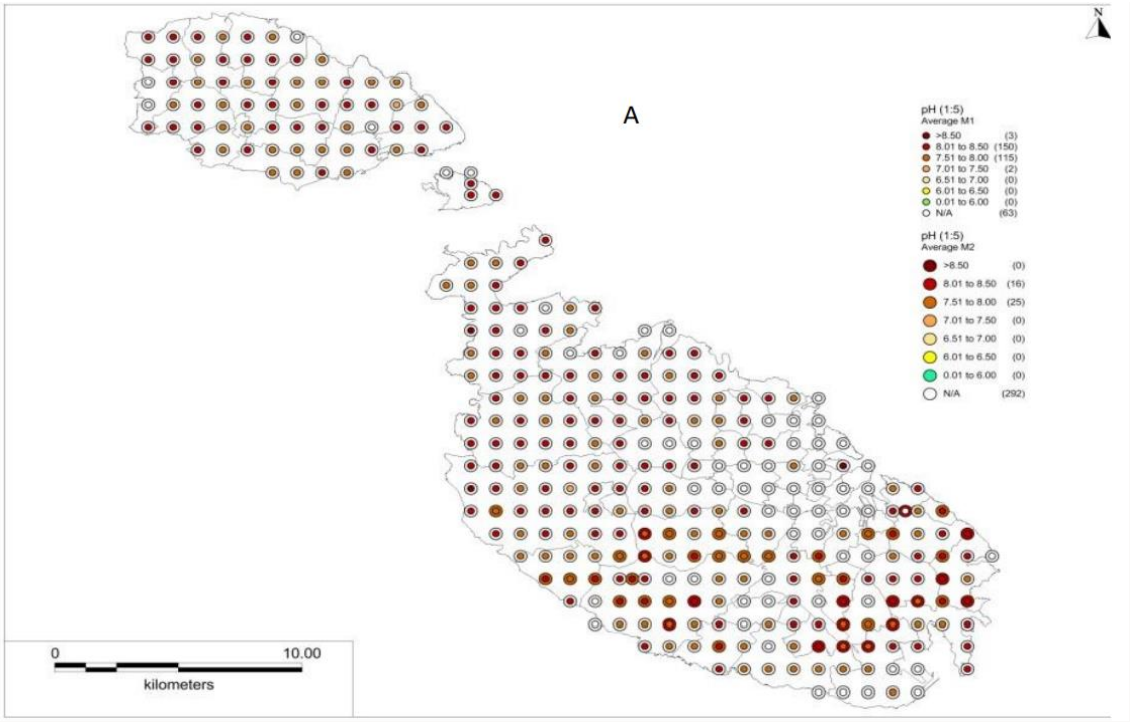

Figure 2. Soil acidity (smaller circle refers to average Ph values for 2003, larger circles for 2013). Source: State of the Environment Report, 2018, ERA

When it comes to the European level, the average acidity of soil is even higher, especially towards the north, including Scandinavia, as shown at the map below (Figure 3). This means generally suitable conditions for lead to dissolve and enter into the food chain. Such conditions are a strong supporting argument to reduce the use of lead in anthropogenic activities as soon as possible, including through the ban on lead-contained shot and bullets in hunting and sports shooting. Further remediation and rehabilitation of contaminated soil is a costly and complicated process, making it more efficient to prevent the contamination (some

[9] https://thekeep.eiu.edu/cgi/viewcontent.cgi?article=2806&context=theses
[10] https://www.epa.gov/sites/default/files/documents/epa_bmp.pdf
[11] ERA (2018) Land & Coast (Chapter 4) State of the Environment Report

particularities, including the costs of lead-contaminated soil remediation can be found in the recent scientific articles[12],[13]).

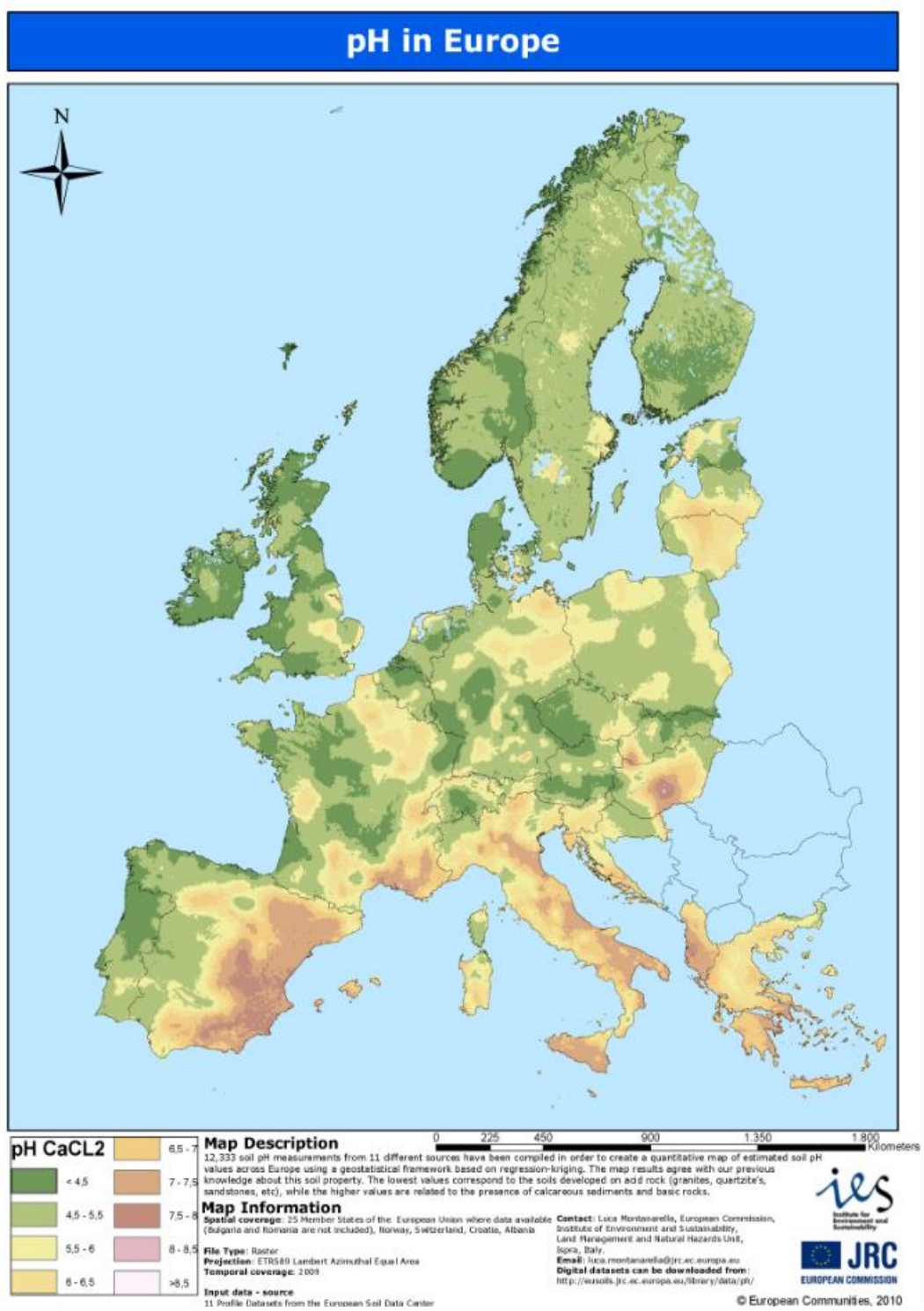

Figure 3. Soil pH values across Europe. Source: EC[14]

[12] Remediation of lead-contaminated soil by washing with choline chloride-based deep eutectic solvents - ScienceDirect

[13] (PDF) From soil contamination to land restoration (researchgate.net)

[14] Soil pH in Europe - ESDAC - European Commission (europa.eu)

We would like to draw your attention to the controversy of the figures with regards to the tonnage of lead released yearly, namely a considerable difference in the amount of lead indicated in the original dossier and the present draft opinion (namely, the decrease from 35k tons to 24,5k tons for sports shooting). The final figures should be verified and confirmed based on the official and reliable data.