

## Response to “Consumption of wild-harvested meat from New Zealand feral animals provides a unique opportunity to study the health effects of lead exposure in hunters” by Buenz et al.

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Comment to: Buenz, E., G. Parry, and M.M. Peacey. 2016. Consumption of wild-harvested meat from New Zealand feral animals provides a unique opportunity to study the health effects of lead exposure in hunters. *Ambio*. doi:[10.1007/s13280-016-0798-1](https://doi.org/10.1007/s13280-016-0798-1).

While acknowledging endorsement of our paper from Buenz et al. (2016), we believe that further study of relations between elevated human blood lead levels and lead in game meat is not required to validate the transition to non-lead bullets. The essence of our article (Kanstrup et al. 2016) was that Denmark could extend its existing bans on possession and use of lead gunshot and fishing weights to lead-core rifle ammunition, and thus complete the transition. Denmark faces several binding legal obligations to do so. We presented evidence for defined risks from bullet-derived lead: human health concerns from eating game meat, and the health of scavenging wildlife. Because Denmark has not monitored these areas, our evidence was indirect.

Sport hunting is international, as are the types of lead-core ammunition used, and behaviours of such bullets in animals. Thus, international research can support progressive changes in government policy on environmental lead reduction, especially given the same sources and routes of exposure.

Levels of lead in blood and game meat were correlated for US and Norwegian hunters (Iqbal et al. 2009; Meltzer et al. 2013; Knutsen et al. 2015), and confirmed by isotope analyses (Tsuji et al. 2008). High levels of bullet-derived lead exist in wild game meat (Dobrowolska and Melosik 2008; Morales et al. 2011; Fachehoun et al. 2015) that often exceed the European Commission threshold of 0.2 mg Pb/Kg.

Our paper emphasized the risks of lead exposure to wild scavengers from ingested lead fragments in shot animals, an aspect not addressed by Buenz et al. (2016). The scientific evidence for this relationship is compelling, especially for avian scavengers of the Baltic-European region (Helander et al. 2009; Krone et al. 2009; Nadjafzadeh et al. 2013).

Given the consistent conclusions from the above-cited research, further monitoring is not likely to alter our understanding of the risks to human and avian health. However, the study proposed by Buenz et al. (2016) could facilitate awareness at the local level and stimulate a regulated transition to non-lead hunting ammunition in New Zealand.

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