

# Effectiveness of an assurance scheme for wild-shot game meat products in promoting a voluntary transition from the use of lead to non-lead ammunition for hunting

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## Abstract

1. A consensus has emerged in the United Kingdom that a transition away from the use of lead ammunition for hunting game animals would be desirable to reduce harm that lead causes to wildlife and the market for healthy game meat products. Voluntary methods to achieve this transition are preferred by hunters' organisations and the UK Government, though statutory regulation is also being considered.
2. Voluntary transition methods include provision of advice to hunters by their non-governmental organisations and moves by the game meat trade to switch to supplying only wild-shot game products from animals killed using non-lead ammunition.
3. In this paper, I address the effectiveness of the practical implementation of a widely promoted wild-shot game meat product assurance scheme by asking commercial stockists of game meat listed on the scheme's website about the demand for lead-free game, their current labelling of products and the usefulness of the scheme's register of lead-free shoots in helping them to source game shot using non-lead ammunition. Responses were received from 39 stockists.
4. Few respondents considered that there is currently significant demand for lead-free game meat products, though more than one-third thought that future growth in demand was probable. Few respondents currently sell products labelled as lead-free. Only one respondent had found the register of lead-free shoots useful and several were unaware of its existence.
5. Based on this evidence and a review of progress with other voluntary initiatives, I conclude that substantial improvements in their effectiveness are needed if the benefits of a transition are to be achieved without statutory regulation.

## KEYWORDS

lead ammunition, lead-free game meat, statutory regulation, voluntary change

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## 1 | INTRODUCTION

Shotgun pellets and bullets made from metallic lead have been the principal types of projectiles used by hunters to kill wild game animals for over 200 years. Lead derived from ammunition causes harm to wildlife (Pain et al., 2019) and public health (Green & Pain, 2019). For several decades, proposals have been made to ban the use of lead in ammunition and require its replacement with other materials, such as steel for shotgun pellets and copper for bullets, but most hunters of wild game animals in the United Kingdom and the European Union (EU) have been reluctant to accept them. However, the European Commission requested in 2015 that the European Chemicals Agency (ECHA) prepare a dossier for a possible European Union (EU)-wide ban on the use of lead shotgun ammunition for shooting in wetlands under the EU Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulations (European Commission, 2015). This proposal was intended to reduce harm to waterfowl (especially Anatidae) caused by ingestion and poisoning from spent lead shotgun pellets. These EU-wide restrictions on lead ammunition have since come into force. In recognition of additional, more widely distributed risks to the environment and human health from the use of lead ammunition, the European Commission requested in 2019 that ECHA prepare a proposal for a ban on the use of lead shotgun ammunition and bullets outside wetlands (European Commission, 2019). The proposal was published in March 2021 (ECHA, 2021). If it is accepted, it may come into force in 2024.

In 2016, the UK Government ruled out any further changes to the regulation of lead ammunition, beyond already having banned its use for hunting waterfowl and/or in wetlands, beginning in 1999. The UK Secretary of State for the Environment, Food and Rural Affairs stated that evidence for impacts of lead ammunition on the environment and public health were insufficient to justify a wider ban on the use of lead ammunition (Truss, 2016). This position changed in March 2021, when the Parliamentary Under-Secretary of State for the Environment, Food and Rural Affairs announced that her department would consider a ban on lead ammunition to protect wildlife and nature (Defra, 2021). A process was then initiated by the UK's Health & Safety Executive under the UK REACH process to assess the practicality, costs and benefits of such a ban. However, the timetable of the UK REACH process has since been delayed (HSE, 2023) and both its timing and conclusions are now uncertain. Recent UK governments have strongly preferred voluntary controls to regulation in several environment and food policy areas and have suggested that regulation should only be used as a last resort (National Audit Office, 2014). Hence, a ban on lead ammunition in the United Kingdom may not be implemented, even if it is recommended by UK REACH.

Possibly in response to this government preference for voluntary controls over regulations, there have been several initiatives by UK non-government organisations and commercial businesses to achieve a voluntary phasing out of the use of some types of lead ammunition for some types of game hunting. In February 2020, a joint statement on the future of shotgun ammunition for live quarry

shooting in the United Kingdom was issued by nine UK shooting and rural non-governmental organisations (BASC, 2020). It stated that “in consideration of wildlife, the environment and to ensure a market for the healthiest game products, at home and abroad, we wish to see an end to both lead and single-use plastics in ammunition used by those taking all live quarry with shotguns within five years”. This statement was welcomed by the Department for Environment, Food & Rural Affairs, which is the UK government department responsible for regulating the use of lead ammunition, as a ‘voluntary move which will bring benefits for wildlife and the wider environment’ (Defra, 2020). The shooting and rural organisations have many members who are hunters and they intend to persuade them to change from using lead to non-lead shotgun ammunition voluntarily by 2025 by giving encouragement and practical advice (e.g. BASC, 2021; GWCT, 2022).

In addition, there have been several initiatives intended to achieve a voluntary transition from lead to non-lead ammunition for killing game animals supplied to human consumers of game meat. One of these is a scheme set up by the British Game Assurance (BGA), which aims to promote, develop and assure the use of game meat as healthy and sustainable food (British Game Assurance, 2021). The scheme was set up by ten UK shooting and countryside organisations, including eight of the nine organisations that issued the joint declaration in 2020 for the voluntary phasing out of the use of lead shotgun ammunition for hunting. The assurance scheme addresses a much wider range of topics than just lead ammunition and requires adherence of participating game shoots to ‘Shoot Standards’. The scheme has been widely promoted and its potential benefits for human health have been emphasised (Bonner, 2022; British Game Assurance, 2021). For lowland gamebird shoots, the standards recommend (Recommendation 10.2R), but do not require, the use of non-lead shotgun ammunition. Shoots are also invited to join the BGA Lead Free Register, which requires that lead ammunition is not used (condition 10.3; British Game Assurance, 2021). The BGA also created the Eat Wild website (Eat Wild, 2022), which lists over 160 UK stockists (wholesalers, food retailers and restaurants) in the United Kingdom who supply BGA-assured game meat. The website emphasises that meat from wild game is healthy compared with other meats and states that all BGA-assured game is produced subject to conditions concerning land management, the number of birds reared and released, and the use of medication. However, the BGA scheme encourages but does not require the use of non-lead shotgun ammunition, except on shoots which elect to join the BGA's Lead Free Register.

In this Practice Insight, I examine the extent to which UK commercial businesses involved in the supply of game meat for human consumption have engaged with this voluntary initiative and have used it to facilitate the transition from lead to non-lead. I report on responses from stockists listed on the BGA's Eat Wild website to questions I posed to them about the demand from consumers for lead-free game meat, the extent to which they already supply it and the usefulness of the BGA's Lead Free Register in facilitating their access to sources of assured supplies of lead-free game.

## 2 | MATERIALS AND METHODS

On 28 March 2023, I sent a personal, signed, hard-copy letter to all 166 of the UK retail businesses listed on the Eat Wild website administered by British Game Assurance. I downloaded the list on 5 March 2023 from <https://www.eatwild.co/stockists/> and used Google to check, as far as possible, the nature of the businesses and their postal addresses. All of listed business appeared to be advertising that they were wholesalers or retailers of game products or game meals. I corrected a few typographic errors in the addresses. My letter explained that I am a scientist interested in the progress in the United Kingdom of the proposed voluntary transition from the use for hunting of lead to non-lead ammunition. I asked the recipient to mark their preferred answer (yes or no) to each of six short questions (see Table 1) with a pen and then return the marked letter to me in an enclosed pre-stamped, pre-addressed envelope. I also suggested the option of writing additional text remarks onto the letter. My letter was addressed to the business, rather than to an individual, and stated that the business would not be named as the source of any information the recipient chose to share with me. I did not collaborate with British Game Assurance on this study or inform them about it before sending the letters in order to avoid the possibility of them contacting businesses about it in a way that might influence their responses. I used the second-class option of the UK's national postal service (Royal Mail) for postage and for the pre-paid return envelopes. The full text of my letter is given in Appendix A. I created a spreadsheet of the answers to each of the six questions based upon all of the responses received by 30 May 2023.

## 3 | RESULTS

Five of my letters were returned by the postal service as being undeliverable to the address I used, which suggests that the businesses

concerned may have moved or ceased to trade since the Eat Wild list was compiled. Hence, my letter was probably received by 161 businesses. I received 42 responses, which represents a 26% response rate. Text written on three of the replies explained that the business concerned no longer sold game meat products and the recipient could therefore not reply meaningfully to my questions. All of the remaining 39 respondents responded 'yes' or 'no' to all six of the questions. An anonymized table of the answers is provided as Appendix B.

Proportions of respondents replying 'yes' to the six questions are shown in Table 1. Only 13% of respondents considered that there was currently a significant demand for lead-free game products but 38% thought that there would be significant future growth in demand for such products. The proportion of respondents currently selling wild-shot game products or meals specifically labelled as lead-free was slightly higher for wild boar and venison (15%) than for gamebirds (8%), but the difference did not approach statistical significance (Fisher 2×2 exact test, two-tailed  $p=0.481$ ). Only one respondent (3%) had found the BGA's Lead Free Register useful in sourcing lead-free game products and this positive reply was from the same business for both gamebird and wild boar and venison products. Written comments added by three respondents (8%) indicated that they were not aware of the existence of the Lead Free Register.

## 4 | CONCLUSIONS

Stockists' responses to my questions suggest that there is currently a low level of interest in supplying lead-free game, at least partly because of perceived lack of significant demand. However, over one-third of respondents considered that demand for such products is likely to grow significantly in future. Only a minority of respondents said that they sold any game meat products labelled as being lead-free.

**TABLE 1** Responses by UK stockists of game meat products to six questions about demand for and current provision of products from wild-shot game animals killed using non-lead ammunition and usefulness of the Lead Free Register of British Game Assurance (BGA). All responses were 'yes' or 'no'. The number of stockists responding was 39 for all questions.

Question code	Question	Number answering 'yes'	% 'yes'
1.	Is there significant demand from your customers now for lead-free game meat products?	5	13
2.	Do you expect significant future growth in demand from your customers for lead-free game meat products?	15	38
3.	Do you sell any wild-shot gamebird products or meals specifically labelled as lead-free?	3	8
4.	Do you sell any wild-shot venison or boar meat products or meals specifically labelled as lead-free?	6	15
5.	Have you found the BGA's Lead Free Register of lead-free shoots useful in sourcing lead-free gamebirds?	1	3
6.	Have you found the BGA's Lead Free Register of lead-free shoots useful in sourcing lead-free venison or boar meat?	1	3

In the case of wild-shot gamebird products, this may partly be due to a lack of availability from gamebird shoots of carcasses that were known to have been killed using non-lead ammunition. In the United Kingdom, wild-shot gamebirds are almost entirely killed on shooting estates by hunters who visit for the purpose of recreation, with many of them paying the estate owners considerable fees to do so. In these circumstances, it is difficult for shooting estates to control the type of ammunition that the hunters use. In the 2022/2023 shooting season, only 2% of the large UK gamebird shoots surveyed required hunters only to use non-lead shotgun ammunition on their land (Savills, 2023) and 94% of wild-shot pheasants purchased from UK food retailers from which shotgun pellets were recovered and identified had been killed using lead ammunition (Green et al., 2023). It is therefore difficult for game dealers and other businesses to find sources of gamebird carcasses killed using non-lead ammunition and to be confident about the type of ammunition used. This problem appears to have affected other UK voluntary initiatives by suppliers of game meat products. The supermarket chain Waitrose & Partners, the largest UK retailer of game meat, has indicated that it intends to sell only game meat from animals killed with non-lead ammunition (Waitrose, 2020). However, carcasses of wild-shot pheasants have not been offered for sale in Waitrose supermarkets since this change of policy was due to be implemented because of a lack of availability of sufficient carcasses known to have been killed using non-lead ammunition (Green et al., 2023). Waitrose has fulfilled its change of policy for venison by only selling meat from farmed deer. In March 2021, members of the National Game Dealers Association, the UK's trade organisation for dealers and wholesalers of game meat, committed to ensuring that all of its bird and mammal game meat would be obtained from lead-free sources from 1 July 2022 (National Game Dealers Association, 2021). However, it did not act upon this undertaking. All pheasant carcasses purchased from National Game Dealers Association members during the 2022/2023 shooting season from which shotgun pellets were recovered and tested had been killed using lead shot (Green et al., 2023) and samples of pheasant meat from carcasses purchased from three member businesses had high mean concentrations of lead (Wild Justice, 2022). In an interview with a grocery trade magazine in 2023, the chief executive officer of British Game Assurance was quoted as saying that game processors and dealers had backed out of their commitments on lead-free game and that "the impetus for change was sucked out of the industry overnight" (White, 2023).

The BGA's Lead Free Register would seem to offer stockists of game meat products an easy way to access game carcasses assured to be lead free, but the register is not a public document. It appears that the BGA is willing to divulge names of game shoots on the register privately to stockists who ask them, but only one of the businesses responding to my questions said that they had found it useful and 8% said, unsolicited, that they were unaware of it.

The situation for meat from deer (venison) and wild boar is different from that for gamebirds. Much of the venison and wild boar meat sold in the United Kingdom is from farmed rather than wild-shot animals. Even for venison from wild-shot deer, the mean concentration of ammunition-derived lead in the meat is lower than that

in meat from wild-shot gamebirds (Pain et al., 2010). Since 2016, Forest Enterprise England, which is an executive agency of a UK government department, has required its staff to use only non-lead ammunition when culling deer and wild boar and the equivalent body in Scotland, Forest Enterprise Scotland, later made a similar transition. These two agencies together supply over 900 tonnes of venison per year to the human food chain (Thomas et al., 2020). This change in bullet type is likely to have reduced lead concentrations further below those reported for meat sampled before 2009 and reported by Pain et al. (2010). There may therefore be a perception among game meat suppliers and consumers that contamination with ammunition-derived lead is a much less significant problem for venison and wild boar meat than it is for gamebird meat and this may have weakened demand for lead-free venison and boar products.

I conclude that, except for the action taken by the forestry agencies, voluntary initiatives in the United Kingdom game meat trade to switch from supplying meat from wild-shot game animals killed using lead to those killed using non-lead ammunition are currently having very little effect on the supply or demand for lead-free game meat products. These and other voluntary initiatives are not having a significant effect on objectives to reduce the continuing negative effects of lead ammunition on wildlife and public health. Either substantial revisions to existing voluntary initiatives or statutory regulations to ban the use of lead ammunition for hunting are likely to be needed if these objectives are to be achieved.

## AUTHOR CONTRIBUTIONS

Rhys E. Green conceived the ideas, designed the methods, collected and analysed the data, wrote the manuscript, contributed critically to the drafts and revisions and gave final approval for publication.

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## CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

## PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1002/2688-8319.12257>.

## DATA AVAILABILITY STATEMENT

Answers to the six questions posed in Appendix A are given in Appendix B for all 39 respondents who answered the questions.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**Appendix A.** Text of a letter sent to 166 UK stockists of game meat products on 28 March 2023.

**Appendix B.** Answers (Y=yes; N=no) to the six questions (see Appendix A) posed to recipient businesses for all 39 businesses which contributed answers to the study.

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