

Scottish Charity Number SC045958

Position Paper No.3: Ethical Principles in Wildlife Management



Page

Contents

1.	Executive Summary	2
2.	Introduction	4
3.	Regulation	4
4.	What are the ethical principles?	5
5.	Application of ethical principles in the UK	5
6.	Principles into practice	9
7.	Conclusion	11
8.	Recommendations	11
9.	References	12

Image: Barnacle geese © Alick Simmons

Wild Animal Welfare Committee

Scottish Charity Number SC045958

Position Paper No.3: Ethical Principles in Wildlife Management

1. Executive Summary

This position paper sets out the case for applying ethical principles to all forms of wildlife management and, in particular, how the international consensus principles for ethical wildlife control ('the ethical principles'; Dubois *et al.*, 2017) may be applied in the UK.

Scientific evidence supports the belief that wild vertebrates, cephalopod molluscs and decapod crustaceans are sentient, creating an ethical obligation to treat them humanely, including when carrying out interventions that affect their environment or survival. A cohesive framework is necessary to judge the appropriateness of interventions that affect sentient wild animals, and to guide their application. Current legislation and guidance governing both lethal interventions, such as trapping and killing animals, and non-lethal interventions and reintroductions, are fragmented.

The ethical principles offer a robust framework for developing standards at either local or national level, assessing government policies and formulating individual management plans. More than that, they offer an opportunity to review attitudes and practices towards wildlife in the UK, aiming to improve animal welfare without damaging legitimate economic, social or conservation interests.

The summarised ethical principles are as follows:

- Principle 1 Modify human practices to address the root causes rather than only the problematic outcome. The first principle also invites a shift in mindset towards tolerance and coexistence.
- Principle 2 Justify action with evidence that substantial harm is being caused to people, ecosystems, or other animals. This involves reconciling real and perceived harms and conflicting values.
- Principle 3 Set clear and achievable outcome-based objectives, which are continuously monitored and adaptive.
- Principle 4 Animal welfare must be prioritised, by choosing the methods that cause the least amount of harm to the least number of animals. Both typical effects and worst-case scenarios should be considered, as should the effect of the knowledge and skill level of the person involved.

- Principle 5 The social acceptability of practices should be evaluated, via an open process of community engagement, informed by the relevant science and including an ethical review process.
- Principle 6 Any action taken should be part of a long-term systematic plan. Without this, methods may be used repeatedly without achieving a sustainable solution, possibly leading to senseless killing.
- Principle 7 Decision-making should be based on the specifics of the situation, not labels applied to certain species. Terms such as 'vermin' or 'pest' signify an attitude that those animals are worth less and should be killed as a first response.

Examples are given in this position paper of UK scenarios where the individual principles could be applied. There are precedents for the inclusion of other principles within legislation and regulation, for example in EU environmental law. To implement the ethical principles, legislation could be brought to extend species licensing provisions to cover all, or almost all, interventions affecting free living, sentient wild animals in the UK administrations and to incorporate ethical principles into licence applications and conditions.

WAWC recommends that:

- Relevant future legislation and regulation (such as species licensing policy) should provide for the inclusion of the ethical principles to govern any or all wildlife management interventions.
- Ethical principles should be explicitly incorporated and applied in non-statutory codes and guidance.
- Prior to legislation being introduced, the UK administrations and their statutory nature agencies could commit to supporting individual voluntary projects or programmes
- Individuals, land managers or businesses carrying out wildlife control should be incentivised to carry out ethical assessments of proposed interventions, to help decide on appropriate methods and ensure that they provide the desired outcomes while causing the least welfare harm. Educational material and model assessments should be created to assist with this process.
- Researchers should carry out ethical reviews prior to any research on wild animals, and Universities, journals, and funders should require such assessment.

2. Introduction

With the recognition that wild vertebrates possess sentience (SAWC, 2021) comes a growing ethical and, to some extent, legal responsibility to treat them humanely, even when killing of individuals or populations is deemed necessary. Recent scientific assessment of the sentience of cephalopod molluscs and decapod crustaceans (Birch *et al.*, 2021) suggests that similar ethical and legal consideration should also be applied on a precautionary basis to certain invertebrates.

Wildlife management or control encompasses a variety of interventions, both non-lethal and lethal, including habitat adaptation, translocation, tagging for identification purposes, reintroductions, fertility control, trapping and killing. Increasingly, however, the concept of wildlife management or control has come to mean the killing of predators or 'pests'. We use those recognised terms for easy comprehension, whilst acknowledging that using euphemisms for killing can alter perceptions on the gravity of doing so.

Thousands of lethal wildlife management operations are carried out in the UK every year, taking the lives of sentient wild animals and birds, sometimes accompanied by significant suffering. Some lethal interventions are part of national agency strategies, such as programmes aimed at eradicating invasive non-native species, some involve conservation bodies and NGOs, and others are carried out by individuals or businesses on land that they own or manage. The fact that these interventions are widespread and commonplace does not mean that they should continue unquestioned. On the contrary, it increases the necessity for a cohesive framework to judge their appropriateness and guide their application.

The ethical and animal welfare impacts of research conducted on wild animals, including where this is sometimes carried out in tandem with management activities, should also be scrutinised, and such research should also be guided by an ethical framework (Papastavrou 2023).

3. Regulation

Over the years, a number of laws have been passed in the UK to regulate the methods used in wildlife management interventions. There is no single, consolidated piece of legislation or overarching framework that sets out clearly what may, and may not, be done to wild animals in different circumstances, and no single agency with responsibility for safeguarding wild animal welfare. Because animal welfare, the environment and the conservation of species are devolved matters, variations have arisen in recent years between the rules in different UK administrations.

For future regulation, WAWC promotes the adoption of the international consensus principles for ethical wildlife control ('the ethical principles'; Dubois *et al.*, 2017). These offer a robust framework for developing standards at either local or national level, assessing government policies and formulating individual management plans. They are supported as valuable assessment tools by the British Veterinary Association (BVA, 2021). More than that, they offer an opportunity to review attitudes and practices towards wildlife in the UK, aiming to improve animal welfare without damaging legitimate economic, social or conservation interests.

4. What are the ethical principles?

The international consensus principles for ethical wildlife control (Dubois *et al.*, 2017) were developed by a panel of 20 experts convened in 2015 at the University of British Columbia to explore international perspectives on and experiences with human–wildlife conflicts and develop principles for ethical wildlife control, using a facilitated engagement process and discussion. The resultant academic paper, published in 2017, foresaw the ethical principles approach being incorporated into international or domestic regulations and decision-making by public authorities or by private operators such as land managers, animal control businesses and others.

Ethical principles mean that the acceptability of a wildlife control action is based on a comprehensive analysis of the necessity for control, benefits, feasibility, costs to people and animals, alternatives, and effects on animal welfare in terms of the humaneness of the physical methods employed. While the ethical principles are not intended to prohibit or prevent wildlife control, including lethal control, their application allows for significant reduction and mitigation of harmful effects on individual animals and populations, as well as promoting the public acceptability of justifiable interventions. The ethical principles are flexible and can be applied across a wide range of interventions involving different species, whether by way of government or agency policy or as part of local decision-making processes, either public or private.

5. Application of ethical principles in the UK

The original ethical principles paper includes international examples of each principle being put into practice. Here, we consider each of the principles in turn and give commentary on its application and how it relates to practices in the UK.

Principle 1	Modify human practices to address the root causes rather than only the
	problematic outcome. The first principle also invites a shift in mindset towards
	tolerance and coexistence.

Applying this principle to certain circumstances could negate the necessity of any further intervention. For example, when gulls in coastal towns are perceived to be a problem, changes in human behaviour and refuse bin design to reduce the abundant supply of food currently available, alongside protection of natural gull habitats, could substantially reduce the problem without interventions directly involving the gulls.

When rats and mice enter homes where they are unwelcome, a change in mindset would mean that people first tried preventative measures such as blocking all potential entry points, rather than immediately resorting to traps. Integrated 'pest' management is a holistic approach that has such mitigation as the first step, followed by monitoring to assist in decision making, and killing as the final step (BVA 2021). Local authorities can lead this mindset shift, as happened in Provincetown, Massachusetts, in relation to rats; authorities there focus on educating people about preventative measures such as removing sources of food and shelter (Legere, 2021).

Many wild animals are killed in the UK because they are seen as a threat to farmed animals. Following this principle would suggest that farmers employ all possible methods of protecting

their animals first, such as fencing, and picking up dead animals promptly so that predators are not attracted to the area.

Principle 2	Justify action with evidence that substantial harm is being caused to people,
	ecosystems, or other animals. This involves reconciling real and perceived
	harms and conflicting values.

There are instances of this type of evidence being required in the UK, such as for individual species licence applications. However, many species are killed routinely because they are perceived to be harmful. There may also be an element of tradition and ingrained attitudes that perpetuate such killing. This principle states: *'the seriousness of the perceived problem should be considered and an objective evaluation of the effects of no control actions being undertaken should be conducted.'* Species seen as 'pests', such as foxes, have been killed continuously for centuries, so no such evaluation of the effects of no control measure has been possible. It may be that routine ad-hoc killing is not actually effective at reducing harm, and there is some evidence to suggest this (Treves and Naughton-Treves 2005).

Decisions to control some species are based not on the biological carrying capacity, but the 'cultural carrying capacity', which is subjective and can be altered through education, increased tolerance, and preventative measures. If evidence-based decision making became routine across all wildlife management, instances where cultural carrying capacity differed from biological carrying capacity may become apparent, allowing a different approach to be taken.

Principle 3	Set clear and achievable outcome-based objectives, which are continuously
	monitored and adaptive.

Certain specific projects, particularly in conservation, carry out this type of objective-setting, such as the removal of introduced hedgehogs from the Uist islands in Scotland to protect certain threatened seabirds (Thompson and Ferguson, 2019). That project was informed initially by population modelling that suggested the initially proposed methods would take too long to reach the objective. Thus, the plan was altered to include additional methods. The project was continuously monitored, and the approach was altered several times to reflect lessons learnt, external expert advice, or newly published research.

However, this principle is not widely applied and is not required for management actions taken under General Licences.

This principle states that the objective must relate to the reduction of harm, not simply a reduction in number of a targeted species. The badger culls in England fail to meet this principle, as they have continued despite early experiments and ongoing monitoring showing that the culls do not significantly reduce Bovine TB in cattle, their purported aim (DEFRA, 2020). The focus is on the reduction of badger population size rather than the reduction of harm (these culls may also fail to meet principle 4).

Applying this principle more widely would often require collaboration between neighbouring landowners and in some cases a landscape-scale approach.

Principle 4 Animal welfare must be prioritised, by choosing the methods that cause the least amount of harm to the least number of animals. Both typical effects and worst-case scenarios should be considered, as should the effect of the knowledge and skill level of the person involved.

The evidence base for the animal welfare impacts of different wildlife management interventions is limited. There is incontrovertible evidence that certain methods, including most poisons and some traps, have a substantial negative impact on the animals involved. In other cases, the evidence is lacking. Very few current methods of wildlife management have an evidence base that justifies their continued use. The risks are exacerbated as there is limited or no regulation of most methods.

There are also multiple inconsistencies in animal welfare requirements for wildlife management policy. For example, the Scottish Government has agreed that there should be a competency requirement for those shooting deer, yet no such requirement is proposed for people shooting any other species, as is common in many European countries. When farmed animals are slaughtered, it is mandatory for stun procedures to render them unconscious immediately, but killing methods for wild animals can take minutes (some kill traps, ineffective manual killing), hours (traps that do not work as intended), or even days (poison). Furthermore, many animals will suffer for hours in cage traps or snares before being killed.

Even non-lethal methods such as fertility control – generally intended to be benign – require assessment of ethical aspects and likely welfare consequences, potentially using a decision-making framework (Gamborg *et al.*, 2020; Massei, 2023). Badger BCG vaccination has some negative animal welfare impacts as the badgers must be trapped, with resultant stress and potential for injury, but these impacts are lower than those of culling.

Applying the fourth principle would help reduce suffering and eliminate many inconsistencies and would require consideration and development of new methods in addition to those currently being used, if current practices cannot offer a solution that is humane. It should also mean consideration of methods not traditionally used in the UK. One example is guardian animals who live with flocks or herds of farmed animals in other countries and protect them by deterring potential predators, negating the need for more invasive methods.

As noted in the fourth principle, 'To apply the method causing the least welfare harm, systematic scientific evaluation of the possible harms is required [...] ongoing development and evaluation of methods are needed because methods that cause the least harm at a given time may be superseded by less harmful methods in the future.'

There are frameworks available that offer such evaluation of the possible harms. A system to assess and compare the evidence relating to the animal welfare impacts of various interventions against animals labelled as 'pest' has been developed by Sharp and Saunders (2011). Recent examples of the application of this process have covered Norway rat management (Baker *et al.*, 2022) and the welfare of wild horses (brumbies) in Australia (Harvey *et al.*, 2020).

A comparison of lethal control (by shooting) and non-lethal methods on land and at sea concluded that further exploration was required into standards for shooting, 'perceived' versus 'real' negative impacts of predators, educating stakeholders on the complexity of controls and related animal welfare issues, and further development of existing assessment models (Nunny, 2020).

Principle 5	The social acceptability of practices should be evaluated, via an open process
	of community engagement, informed by the relevant science and including an
	ethical review process.

The project to remove hedgehogs from the Uists recognised the importance of community engagement: 'It is essential to have the support of the local community [...] We had support from most land managers but we failed to reach all individuals within the wider community. [...] Once we were able to discuss these introductions and the potential impacts with the individuals involved, they usually became more supportive. Any future removal project should include an education and promotion resource to assist with community engagement. There is also a need to secure full support and commitment right from the start of the project ...' (Thompson and Ferguson, 2019).

People affected by the reintroduction of beavers to the river Otter suggested that proactive engagement, appropriate communication, shared decision-making, managers taking responsibility for the impacts of animals (this factor may be specific to reintroductions), and a need for certainty around future planning were important to reduce the potential for conflict (Auster *et al.*, 2021). There have also been projects recently to assess social attitudes to deer management (Hare *et al.*, 2021) and lynx reintroduction (Bavin and Macpherson, 2022), which may be used to inform practices.

However, much of the wildlife management in the UK does not meet this principle, and in some cases openly rejects transparency and public evaluation. Gathering evidence and involving more people in decision-making will inevitably slow down the process. Provided, however, that the process is robust and inclusive, despite a potential initial delay, there is greater likelihood that lasting consensus will emerge. This contrasts with many current processes which may in some instances may be considered exclusionary and opaque. There are existing examples of bodies that have been employed in other fields that could facilitate such community and ethical scrutiny, such as Citizens' Assemblies and independent ethical review committees including the Animal Welfare Ethical Review Bodies that are statutorily required for any establishment using, breeding, or supplying animals for scientific procedures.

Principle 6 Any action taken should be part of a long-term systematic plan. Without this, methods may be used repeatedly without achieving a sustainable solution, possibly leading to senseless killing.

The authors of the ethical principles state that a lack of such planning can result in control actions being used repeatedly without achieving a sustainable solution. '*This is particularly problematic if control actions carry substantial animal welfare or other costs. For example, low-level culling of abundant or prolific animals can amount to senseless killing if populations rebound quickly.*' The killing of foxes, stoats, weasels, and corvids, amongst others, in the UK,

using traps and snares, provides an example of this. Evidence suggests that traps can cause suffering and a lack of regulation or competency requirement increases the risk. A lack of recording or reporting requirements means that the impact on populations or reduction of harm cannot be properly determined.

The rationale for the sixth principle states: 'To prevent unnecessary harm, decisions to control animals should be integrated into a plan for systematic long-term maintenance of the desired outcome [...] Long-term planning can also help prevent inappropriate decisions from being made during a crisis and can identify research needs for development of appropriate alternative actions.'

Upcoming changes to deer management in Scotland seem to be taking this approach but it is far from being applied universally.

Principle 7	Decision making should be based on the specifics of the situation, not labels
	applied to certain species. Terms such as 'vermin' or 'pest' signify an attitude
	that those animals are worth less and should be killed as a first response.

Wild animals are frequently labelled in ways that mean they receive less welfare consideration and that control actions are taken as soon as their presence is detected, without following the protocols that are applied for other species. In the UK, grey squirrels are targeted for being an 'invasive non-native' species and the language used when discussing them can be less than objective. Foxes are seen as 'pests' or 'vermin', as are rats, mice, and other species. Pigeons, by extension, are labelled 'flying rats'. 'Feral' can be invoked, with value-laden overtones, to justify lethal control of animals that have become wild (Hill *et al.*, 2022).

Objectives and methods applied when targeting animals labelled in this way are less likely to be scrutinised and carry a higher risk of causing suffering to the individual animals. All vertebrate animals (and probably some invertebrates) have capacities for suffering and should be afforded the same protection, regardless of human categorisation or the potential harm they may cause.

WAWC has a topic paper giving more details about the consequences of value-laden language for wild animal welfare (WAWC, 2020).

6. Principles into practice

There are precedents for the inclusion of principles within legislation or regulation, to be acted on or observed by governments and their agencies in the UK administrations. For example, EU environmental law and policy is based on four core environmental principles contained in Article 191(2) of the Treaty on the Functioning of the European Union (TFEU), and these are now incorporated into UK law. To implement the ethical principles, legislation could be brought to extend species licensing provisions to cover all, or almost all, interventions affecting free living, sentient wild animals in the UK administrations and to incorporate ethical principles into licence applications and conditions.

In 2021, a Natural Resources Wales review of General Licences for taking and killing wild birds included discussion of a set of principles (although not the ethical principles discussed in this paper) that the authority proposed to apply when deciding whether to grant general licences. The consultation received a large number of detailed responses (Natural Resources Wales, 2021) and the process resulted in an amended suite of General Licences. NRW announced (Natural Resources Wales, 2022) that:

Our approach to granting general licences will be guided by a set of high-level principles for deciding in which situations a general licence allowing the lethal control of wild birds is appropriate, rather than requiring specific licences to be applied for:

o there is an apparent and genuine need to control species X for purpose Y;

o there is a reasonable expectation that lethal control of species X will be effective at addressing purpose Y;

o there are no satisfactory solutions other than to grant a general licence;

o a general licence is a proportionate measure, given the frequency / scale /severity of problem or need;

o the inclusion of a target species on a general licence will not threaten its own conservation status;

o action authorised by a general licence will not threaten conservation status of any species other than target species;

o the general licence can be framed in legally compliant, clear and enforceable terms.

With specific reference to the ethical principles, in Canada, the AnimalKind Accreditation Program of the British Columbia SPCA aims to decrease wild animal suffering by promoting Wildlife Control Service Providers who 'prioritize the use of non-lethal, removal-and-exclusion methods to resolve human-wildlife conflicts. In the limited cases where use of live capture or lethal control methods are justified, the Program supports only those methods that are legal and cause fewer harms to animal welfare.'

The Program also contributes to public education by raising awareness of the animal welfare outcomes of traditional wildlife and rodent control methods.

The AnimalKind Wildlife and Rodent Control Standards (AnimalKind, 2021) are based on a simplified set of questions derived from the ethical principles:

1. Can the problem be mitigated by changing human behaviour?

2. Are the harms serious enough to warrant wildlife control?

3. Is the desired outcome clear and achievable, and will it be monitored?

4. Does the proposed method carry the least animal welfare cost to the fewest animals?

5. Have community values been considered alongside scientific, technical and practical information?

6. Is the control action part of a systematic, long-term management program?

7. Are the decisions warranted by the specifics of the situation rather than negative categorization of the animals?

The fifteen AnimalKind Wildlife and Rodent Control Standards cover matters ranging from licensing and technician safety to prohibited methods (such as limb-restraint/leg-hold/body gripping traps, snares, rodent glue traps and drowning or snares), all of which are described

and explained in detail along with the reasons for prohibiting their use. Wildlife and rodent control companies have begun to sign up to the Standards and they are also being promoted among local authorities, while their comprehensive, well-informed content can be drawn on by public and operators alike.

Parks Canada, a federal government agency overseeing all national land and marine parks, has also adopted the ethical principles for its biodiversity programmes (specifically, consideration of introduced species eradication).

7. Conclusion

WAWC concludes that the ethical principles are applicable to many wildlife management interventions undertaken in the UK, and that invoking them at all relevant levels of policy-making and implementation would be in the interests of practitioners as well as wild animals.

8. Recommendations

WAWC recommends that:

- Relevant future legislation and regulation (such as species licensing policy) should provide for the inclusion of the ethical principles to govern any or all wildlife management interventions.
- Ethical principles should be explicitly incorporated and applied in non-statutory codes and guidance.
- Prior to legislation being introduced, the UK administrations and their statutory nature agencies could commit to supporting individual voluntary projects or programmes to facilitate use of the ethical principles.
- Individuals, land managers or businesses carrying out wildlife control should be incentivised to carry out ethical assessments of proposed interventions, to help decide on appropriate methods and ensure that they provide the desired outcomes while causing the least welfare harm. Educational material and model assessments should be created to assist with this process.
- Researchers should carry out ethical reviews prior to any research on wild animals, and Universities, journals, and funders should require such assessment.

9. References

AnimalKind Standards for Wildlife and Rodent Control, 2021. <u>https://animalkind.ca/wp-content/uploads/AnimalKind-Wildlife-Control-Standards.pdf</u>

Auster, R.E., Barr, S.W. and Brazier, R.E., 2021. Improving engagement in managing reintroduction conflicts: learning from beaver reintroduction. *Journal of Environmental Planning and Management*, *64*(10), pp.1713-1734. https://doi.org/10.1080/09640568.2020.1837089

Baker, S.E., Ayers, M., Beausoleil, N.J., Belmain, S.R., Berdoy, M., Buckle, A.P., Cagienard, C., Cowan, D., Fearn-Daglish, J., Goddard, P. and Golledge, H.D.R., 2022. An assessment of animal welfare impacts in wild Norway rat (Rattus norvegicus) management. *Animal Welfare*, *31*(1), pp.51-68. <u>https://doi.org/10.7120/09627286.31.1.005</u>

Bavin, D and Macpherson, J. The Lynx to Scotland Project: assessing the social feasibility of potential Eurasian lynx reintroduction to Scotland — Vincent Wildlife Trust 2022 <u>https://www.vwt.org.uk/wp-</u>content/uploads/2022/04/LynxReport4March2022Compressed.pdf

Birch, J., Burn, C., Schnell, A., Browning, H. & Crump, A. 2021. Review of the evidence of sentience in cephalopod molluscs and decapod crustaceans. LSE Consulting.

British Veterinary Association (BVA) 2021. Policy position on animal welfare. https://www.bva.co.uk/media/4273/full-bva-position-on-animal-welfare.pdf

British Veterinary Association (BVA) and British Veterinary Zoological Society (BVZS) 2021. Position on the sale and use of rodent glue traps. <u>full-bva-position-on-the-use-and-sale-of-rodent-glue-traps.pdf</u>

DEFRA, 2020. Next steps for the strategy for achieving bovine tuberculosis free status for England: The government's response to the strategy review, 2018 <u>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment</u> <u>data/file/870414/bovine-tb-strategy-review-government-response.pdf</u>

Dubois, S., Fenwick, N., Ryan, E.A., Baker, L., Baker, S.E., Beausoleil, N.J., Carter, S., Cartwright, B., Costa, F., Draper, C., Griffin, J., Grogan, A., Howald, G., Jones, B., Littin, K.E., Lombard, A.T., Mellor, D.J., Ramp, D., Schuppli, C.A., Fraser, D. (2017). International consensus principles for ethical wildlife control. Conservation Biology, Volume 31, No. 4, 753–760. <u>https://doi.org/10.1111/cobi.12896</u>

Gamborg, C., Sandøe, P. and Palmer, C., 2020. Ethical management of wildlife. Lethal versus nonlethal control of white-tailed deer. *Conservation Science and Practice*, *2*(4), p.e171. https://doi.org/10.1111/csp2.171

Hare, D., Daniels, M. and Blossey, B., 2021. Public perceptions of deer management in Scotland. *Frontiers in Conservation Science*, *2*, p.781546. https://doi.org/10.3389/fcosc.2021.781546 Harvey, A.M., Beausoleil, N.J., Ramp, D. and Mellor, D.J., 2020. A ten-stage protocol for assessing the welfare of individual non-captive wild animals: Free-roaming horses (Equus ferus caballus) as an example. *Animals*, *10*(1), p.148. <u>https://doi.org/10.3390/ani10010148</u>

Hill, K., Szydlowski, M., Heaney, S.O. and Busby, D., 2022. Uncivilized behaviors: How humans wield "feral" to assert power (and control) over other species. *Society & Animals*, *1*(aop), pp.1-19. doi: <u>https://doi.org/10.1163/15685306-bja10088</u>

Legere, C. Town Eschews Poison in Favor of Education - The Provincetown Independent

Massei, G., 2023. Fertility Control for Wildlife: A European Perspective. Animals 2023, 13, 428. <u>https://doi.org/10.3390/ani13030428</u>

Natural Resources Wales (2021). NRW's approach to regulating the shooting and trapping of wild birds and the destruction of eggs and nests. Summary of consultation responses. March 2021. <u>https://ymgynghori.cyfoethnaturiol.cymru/evidence-policy-and-permitting-tystiolaeth-polisi-a-thrwyddedu/nrw-s-approach-to-regulating-the-shooting-and-trap/supporting_documents/Consultation%20responses%20summary%20report.pdf</u>

Natural Resources Wales (2022). Review of NRW's approach to regulating the shooting and trapping of wild birds: Our decisions in relation to general licences. April 2022. https://ymgynghori.cyfoethnaturiol.cymru/evidence-policy-and-permitting-tystiolaeth-polisi-a-thrwyddedu/nrw-s-approach-to-regulating-the-shooting-and-trap/supporting_documents/Decisions%20in%20relation%20to%20general%20licences%20 %20April%202022.pdf

Nunny, L., 2020. Animal welfare in predator control: Lessons from land and sea. How the management of terrestrial and marine mammals impacts wild animal welfare in human-wildlife conflict scenarios in Europe. *Animals*, *10*(2), p.218. <u>https://doi.org/10.3390/ani10020218</u>

Papastavrou, V. and Ryan, C., 2023. Ethical standards for research on marine mammals. *Research Ethics*. <u>https://doi.org/10.1177/17470161231182066</u>

Scottish Animal Welfare Commission (SAWC) 2021. Ascribing sentience to animals and case study of the evidence for sentience in cephalopods: Scottish Animal Welfare Commission report.

Part 1: Principles for ascribing sentience to animals - Ascribing sentience to animals and case study of the evidence for sentience in cephalopods: Scottish Animal Welfare Commission report - gov.scot (www.gov.scot)

Sharp, T. and Saunders, G., 2011. *A model for assessing the relative humaneness of pest animal control methods*. Canberra, Australia: Department of Agriculture, Fisheries and Forestry. <u>humaneness-pest-animals.pdf (agriculture.gov.au)</u>

Thompson, R.C. and Ferguson, J.M., 2019. Removing introduced hedgehogs from the Uists. *Island invasives: scaling up to meet the challenge*, (62), p.274. <u>https://portals.iucn.org/library/efiles/documents/SSC-OP-062-En.pdf</u>

Treves, A., 2005. 6 Evaluating lethal control in the management of human-wildlife conflict ADRIAN TREVES AND LISA NAUGHTON-TREVES. *People and wildlife, conflict or co-existence?*, *9*, p.86. doi:10.1017/CBO9780511614774.007

Wild Animal Welfare Committee (WAWC) 2020. Value-Laden Language and its consequences for wild animal welfare. WAWC Topic Paper No. 2. (2020) <u>https://static1.squarespace.com/static/5edf4fd72d25275e3acc8c4a/t/5f5258d0ed0dbd7b5</u> <u>193f25e/1599232210487/Topic+Statement+Language+Final+Sept+2020.pdf</u>