

Wild Animal Welfare Committee



Activity Review 2016-2018

Contents

About the WAWC	3
Who we are	5
How we are funded	8
How we work	8
The WAWC research project	12



The WAWC's charitable objects are to advance animal welfare by:

1. Providing an independent evidence base for evaluating, monitoring, assessing and improving decisions affecting the welfare of free-living wild animals in the UK.
2. Increasing awareness of the importance and value of wild animals in general.
3. Promoting the welfare of individual wild animals in particular.
4. Highlighting harm to, and suffering of, wild animals caused by human activity, with the aim of reducing these negative impacts.

In pursuit of its charitable objects, the WAWC has adopted the following Mission Statement:

1. The Wild Animal Welfare Committee (WAWC) is an independent group providing an evidence base for evaluating, monitoring, assessing and improving decisions affecting the welfare of free-living wild animals in the UK.
2. The WAWC will highlight the importance and value of wild animals in general, and promote the welfare of the individual in particular.
3. The WAWC will aim to reduce harm to wild animals and prevent suffering caused by human activity.
4. The WAWC will disseminate objective information on a range of wild animal welfare topics.
5. The WAWC will commission and publish independent reports on contemporary wild animal welfare issues of public and political concern.
6. The WAWC will work to promote the awareness and improvement of wild animal welfare.
7. The WAWC will engage with organisations that can contribute to its evidence base.

Wild Animal Welfare Committee

Charity No SC045958

c/o 50 Montrose Terrace, Edinburgh EH7 5DL

0131 661 9734

wawcommittee.org

wildanimalwelfarecommittee@gmail.com

Cover image © Alick Simmons

About the WAWC

The Wild Animal Welfare Committee (WAWC) is a ground-breaking initiative with the potential to achieve significantly improved protection for sentient wild animals in the United Kingdom. The WAWC was set up by its founding members in September 2014, to provide independent advice and evidence about the welfare of free-living wild animals in the UK, aiming to reduce harm to animals and prevent suffering caused by human activity.

Members are invited to join the Committee on the basis of their personal involvement in, or contribution to, the promotion of wild animal welfare and sit as individuals, independent of any organisation or institution.

In terms of both legislation and public understanding, the welfare of free-living wild animals in the UK is a much-neglected area. The UK administrations have traditionally commissioned and accepted advice from recognised bodies on matters such as farm animal welfare and companion animal welfare. However, until the creation of the WAWC there has been no analogous body to advise on wild animal welfare.

The WAWC was set up to fill this gap and provide informed independent comment based on scientific research and modern understanding of animal welfare and animal sentience, with a view to influencing public policy on wildlife so that animal welfare is optimised.

In September 2015 the WAWC became a charity – a Scottish Charitable Incorporated Organisation (SCIO).



© Alick Simmons

Our aims

As our charitable objects state, the primary aim of this voluntary Committee is to reduce harm to wild animals in the UK and to prevent suffering caused by human activity where possible.

It is a fact of life that free-living wild animals will suffer and die, and as much as humans may regret that harsh reality, we know that it is generally inappropriate to interfere with the natural course of events. The consequences are often unpredictable and can be negative, both for individual animals and for populations. But we can, and should, take a long hard look at the activities of our own species and how these impact – often unjustifiably – on the wild animals that surround us.

Many traditional activities that affect wildlife, from sport shooting to pest and predator control, have carried on largely unquestioned for decades or even centuries – either because the practices were unknown or unobserved, or simply because they have always been done that way. Newer activities such as wildlife rehabilitation, identification tagging, research, translocation and other conservation-related activities all have consequences for the welfare of the individual, which are sometimes overlooked or unanticipated. And then there are the many novel developments that affect the environment and create new hazards for the individuals living in it – higher buildings, more extensive transport links and changing land use patterns. These anthropogenic impacts on sentient, individual wild animals are the focus of the WAWC's attention.

The keepers of farm, companion, zoo, research and other captive animals in the UK are all subject to animal welfare laws which, while having a basis in science, have also been shaped by ethical debate amongst parliamentarians and the general public. The welfare of wild animals should, in our view, be treated no differently. The increasing evidence of sentience in a growing number of species means that wild animal welfare must be given greater emphasis.

On many levels, the protection afforded free-living wild animals is patchy and inconsistent. The WAWC believes that application of an ethical framework governing the full spectrum of human intervention on wild animals would lead to increased public scrutiny and accountability of interventions against wild animals, including the modernisation of legislation that controls the use of traps, poisons and other methods of capture and killing.

This report sets out how the WAWC works to harness science and ethics to influence government, policy makers and the wider public to improve the protection of wild animal welfare in the UK. Our Strategy for the next two years can be seen on the WAWC website: wawcommittee.org.

Wild Animal Welfare Committee
May 2018

“From hunting with dogs to the grouse shooting debate, from rodenticides to the badger cull, from ocean noise to climate change: many of today's countryside and conservation debates are of key relevance to animal welfare, yet this aspect can often be overlooked. The Wild Animal Welfare Committee offers an opportunity for everyone with an interest in wildlife welfare to discuss and identify priorities for policy development and government action.”

Dr Pete Goddard, WAWC Chair, November 2016



© Alick Simmons

Who we are

The WAWC currently has nine full members, of whom three are Trustees of the charity, and is supported by a Secretary and an Observer. Institutional affiliations are shown in this section for information only – all members of the WAWC sit as independent individuals. Members are appointed for the high level of expertise and experience they can bring to the Committee, in a variety of areas affecting the welfare of wild animals in the UK.

Chair

Dr Pete Goddard BVetMed, PhD, DipECSRHM, DipECAWBM, MRCVS (Trustee)

Dr Pete Goddard is a veterinary surgeon with a particular interest in animal welfare focusing on welfare in ruminants under extensive systems of management, and the health and welfare of wild and semi-managed animals. Pete worked at the James Hutton Institute in Aberdeen where he headed the Institute's Ecological Sciences Group and is now an Emeritus Fellow at the Institute. He has published more than 70 scientific papers and has authored 9 book chapters, most recently in the 2014 edition of *Livestock Handling and Transport* edited by Temple Grandin. He is a member of the Editorial Board of *Applied Animal Behaviour Science* and a Diplomate of the European College of Animal Welfare and Behavioural Medicine (Welfare Science, Ethics and Law). For the two years, until April, 2010, he was chair of the Animal Welfare Science Ethics and Law Veterinary Association (AWSELVA) and for 6 years he was a trustee of the Animal Welfare Foundation.



Secretary

Libby Anderson

Libby is the Policy Advisor to OneKind, an animal protection charity based in Edinburgh working to end animal suffering through campaigns, research and education, and seeking improved protection for wild animal welfare in the legislation of the four UK administrations. OneKind supports the activities of the WAWC by providing a secretariat to the Committee.



Members

Dr Sandra Baker BSc(Hons), DPhil

Sandra is the Humane Society Research Fellow and a member of the University of Oxford's Wildlife Conservation Research Unit (WildCRU). Her primary research interests relate to the welfare of wild vertebrates, including human-wildlife conflict, wildlife management and wildlife trade issues.



Earlier work focused on non-lethal wildlife management methods, including learned and generalised food aversions for managing badgers and foxes, and Conditioned Taste Aversion for protecting egg prey from crows. She also studied attitudes towards, and drivers of, fox hunting with hounds. More recently, Sandra investigated various aspects of mole control, following the 2006 UK ban on strychnine poison, including research on mole damage, the need for mole control, the efficacy and welfare impact of trapping moles, and the opinions and behaviour of farmers and other land managers in relation to the humaneness of mole management methods. Leading on from that, she studied the performance of unregulated spring traps for rats, mice and moles, and possible welfare implications.

More recently, Sandra led a systematic review of animal welfare in the global wildlife trade. She has also studied the measurement of trap selectivity in relation to animal welfare and conservation. Current research focuses on the animal welfare impact of vertebrate management methods, including applying and developing a model to examine the impacts of both lethal and non-lethal methods, and to identify ways of reducing these.

Sarah Dolman BEng, MRes

Working for Whale and Dolphin Conservation, Sarah has focused on marine mammal welfare issues for 20 years. She assists with policy development surrounding stranded cetaceans, disturbance and stress, and promotes benign research and increasing knowledge of culture in cetacean societies. Her knowledge includes European legislation that protects marine wildlife, including from human activities such as noise pollution and bycatch.



Sarah worked as receptionist in a veterinary surgery, caring for domestic and wild animals. She was a keeper at Longleat Safari Park whilst at university, where she developed a strong motivation to improve welfare.

She obtained a BEng in communications engineering and an MRes in Fisheries Science. She is a member of the European Cetacean Society Scientific Advisory Committee, the UK Marine Animal Rescue Coalition (MARC) and Scottish Seals Forum. She is a trained UK Marine Mammal Medic, has undertaken large whale disentanglement training in Australia and is trained in sampling dead marine mammals through the Scottish Marine Animal Stranding Scheme. In March 2018, Sarah was appointed to the International Whaling Commission Bycatch Mitigation Initiative Expert Panel.

Dr Chris Draper MSc, BSc, MSB, CBiol, PhD

Chris is a zoologist and chartered biologist, working for the Born Free Foundation on their Zoo Check programme investigating the welfare of wild animals in captivity, and taking a lead on zoo animal welfare issues and Born Free's Compassionate Conservation initiative. He has worked for several animal welfare organisations on issues involving laboratory animals, farmed animals and wildlife. He previously worked as an animal keeper in a sanctuary in the USA with a range of wild animals, and primarily with 50 retired laboratory chimpanzees. Chris is also the European Coordinator for the Global Federation of Animal Sanctuaries (GFAS). In 2018 he completed a PhD at the University of Bristol on the implementation of legislation and assessment of animal welfare in zoos.



Carol McKenna BSc (Trustee)

A committed campaigner for animal protection, Carol has worked with international and national animal protection organisations for some thirty years on a broad range of issues. Projects in recent years have included working on strategic campaigns and special project co-ordination, including the development and ranking of animal welfare priorities, chairing of stakeholder groups and coalitions, research and report-writing, for



Compassion in World Farming, IFAW, One Voice and World Animal Protection (formerly known as WSPA).

Dr Elizabeth Mullineaux BVM&S, DVM&S, CertSHP, MRCVS (Trustee)

Liz graduated as a veterinary surgeon from the University of Edinburgh in 1988 and has since worked mainly in clinical veterinary positions both overseas and in the UK. Her main interest is the welfare of British wildlife presented to wildlife centres for rehabilitation and release back to the wild. For 17 years she was the clinical vet for a large wildlife centre (Secret World Wildlife Rescue) and now works for this charity and others as a veterinary advisor. Liz holds a clinical doctorate from the University of Edinburgh, looking at the factors influencing badger rehabilitation and release, including the impact of bovine tuberculosis on this species. Liz writes and presents extensively on the subject of compassionate wildlife treatment and rehabilitation, with particular emphasis on responsible veterinary care of these species. She is an active member of the British Veterinary Association and its specialist divisions.



Dr Angus Nurse MSc, PhD

Dr Angus Nurse is Senior Lecturer in Criminology at Middlesex University School of Law where he teaches and researches criminology and law and is Programme Leader for the MA Criminology. Angus has research interests in green criminology, corporate environmental criminality, critical criminal justice, animal and human rights law and anti-social behaviour. He is particularly interested in animal law and its enforcement and the reasons why people commit environmental crimes and crimes against animals. Angus has also researched and published on the links between violence towards animals and human violence. His first book *Animal Harm: Perspectives on why People Harm and Kill Animals* was published by Ashgate in 2013, his second; *Policing Wildlife: Perspectives on the Enforcement of Wildlife Legislation* was published by Palgrave Macmillan in 2015.



Angus was previously Investigations Co-ordinator for the Royal Society for the Protection of Birds and spent 8 years as an Investigator for the Commission for Local Administration in England (The Local Government Ombudsman) before joining the Law

School at the University of Lincoln where he spent 3 and a half years before joining Birmingham City University's Centre for Applied Criminology for two years before subsequently joining Middlesex University's School of law. Angus is co-editor of Palgrave Macmillan's international Palgrave Studies in Green Criminology book series (with Rob White from the University of Tasmania and Melissa Jarrell from Texas A & M University at Corpus Christi).

Alick Simmons BVMS, MSc, DipAABAW, MRCVS

Alick Simmons is a veterinarian, naturalist and photographer. After a period in private practice, he followed a 35 year career as a Government veterinarian, latterly as the UK Government's Deputy Chief Veterinary Officer. Alick has had much involvement in public health and disease control policy and extensive practical experience of epidemic livestock disease gained in the UK and overseas.

Alick's lifelong passion is wildlife and, since leaving government service in 2015, he has sought to expand this interest. He is volunteering for the RPSB in Somerset, has become deputy chair of the Universities Federation for Animal Welfare, a trustee of Dorset Wildlife Trust and a member of Oxford University's Animal Care Ethical Review committee. A particular interest is the ethics of wild animal management and welfare. He is devoting more time to photography and is keen to increase the rather modest total of his published photos.

Observer

Dr Stephen M Wickens BSc, PGCE, PhD

Stephen is an animal welfare scientist and ethologist who has worked for the Universities Federation for Animal Welfare for 20 years. Concerned with improving the way we keep and care for animals, he is particularly interested in the welfare of companion and captive wild animals, and those that we interact with in the wild.

Stephen has co-ordinated and organised many national and international conferences, including meetings on wild bird care in the garden, animal populations – world resources and animal welfare, animal training, quality of life, consciousness and on advances in animal welfare science. He is also responsible for the UFAW animal welfare science



outreach programme, the UFAW LINK scheme, which consists of a network of 100+ universities and academics from around the world.

He has held a number of external positions. These include council member of the Association for the Study of Animal Behaviour (ASAB) and Secretary of the ASAB Accreditation Committee, where he coordinated the setting up of a system for setting standards for those treating behavioural disorders in animals and validating universities offering suitable courses in the area, founding director and council member of the UK's Animal Behaviour Training Council and treasurer of the International Society for Anthrozoology. He has been an external board member of Marwell Zoo's Ethics Committee since 2006.

Former members

Professor Piran White BSc, PhD (September 2014 to November 2016).

Dr Kathryn Arnold BSc, PhD (January 2017 to July 2018)

The WAWC is grateful to Piran and Kate for their valuable service to the Committee and their continued support.

How we are funded

WAWC Members serve in an individual capacity and are not remunerated other than receiving travel expenses. OneKind animal protection charity supported the early development of the WAWC by providing a secretariat service and meeting Members' travel expenses, and also made a grant towards the research project.

In 2017, the Committee was extremely grateful to receive a grant from the **LUSH Charity Pot** to cover meetings expenses for the following 12 months.

Other generous supporters since 2014 have been:

The **WPM Lawrie Trust** which supported the first section of the research project;

The **Born Free Foundation** which provided core funding and a grant for the inaugural conference;

The **Universities Federation for Animal Welfare** which provided a grant for the inaugural conference; and

The **Maidenwell Charitable Trust** which gave a grant towards the inaugural conference.

In a consistently challenging fundraising environment, the WAWC recognises the continued necessity of accessing funding to cover core running expenses, research and projects over the next three years. We are very grateful to all those who have supported us so far.



LUSH



How we work

Between 2014 and 2017, the WAWC has:

Completed a stakeholder review to inform activities and priority-setting;

Overseen and taken delivery of the first two sections of a major research project (see page 12);

Provided welfare evidence on public policy matters including glue traps, fox hunting and the use of wild animals in research;

Organised its first conference Wild Animal Welfare: Challenges and Opportunities in November 2016 to explore the growing recognition of the welfare of sentient wild animals and discuss important questions about how wild animal welfare should be addressed in the UK (see page 10); and

Presented the issues of re-wilding and guardianship at an international conference.

Looking ahead

Future plans include completing the research project covering the impacts of anthropogenic activities on the welfare of individual wild animals in the United Kingdom, broken down into separate chapters;

Organising a second conference in March 2019 to discuss the guardianship of wild animal welfare;

Promoting the appropriate elements of the Five Domains for Wild Animal Welfare;

Promoting the adoption of a framework for ethical wildlife interventions with the objective of:

- Increasing transparency of decision-making including evidence-based justification for interventions.
- Reducing the numbers of wild animals killed.
- Wider adoption of best practice in killing or otherwise managing wild animals;

Promoting the adoption of best practice and best available equipment for the humane destruction of wildlife, where this can be justified, by:

- An analysis of traps and trapping techniques to indicate where there are gaps in legislation and guidance.
- Obtaining the best available evidence in the design and use of traps.
- Influencing government via responses to consultations and other opportunities for engagement
- In matters of active conservation and other land management, including re-introductions and re-wilding, promoting consideration of the health and welfare of the individual and its offspring, as well as that of the population in question;

Analysing the implications of value-based language for wildlife management, and making recommendations based on the findings;

Producing a series of position papers on topical issues such as badger culling, re-wilding, pest and predator control; and

Continuing to engage in public policy issues, building on our contributions in areas such as badger culling and the use of traps.



© Alick Simmons

WAWC conference November 2016

The inaugural WAWC conference provided an important opportunity for the Committee to set out its aims, explore the current state of knowledge about wild animal welfare, and seek views from the many knowledgeable stakeholders who attended.

WAWC Chair, Dr Pete Goddard, described the day as “a keystone event in the life of the WAWC”, adding “it’s risky to say this but I think we are trying to do something rather unique.”



The opening presentation by Professor Randal Munro welcomed the Committee’s creation as a much-needed means of “separating fact from fudge” around wild animal welfare. Professor Munro cited his experience as Chair of the

Independent Expert Panel into the pilot badger culls in Gloucestershire and Somerset as an example of the extent to which scientific evidence on welfare could be disregarded by policy makers. The WAWC could play a role in ensuring that decisions were made on the basis of evidence and facts.

Professor David Fraser’s keynote address “Wildlife Welfare: towards a practical ethic for animals” drove home the scale of wildlife welfare problems. He identified examples of the direct, intended effects of human activities on animals, such as keeping animals on farms, in laboratories or as companions, and of deliberate harm caused by activities such as hunting, fishing or slaughter. There were also direct



but unintended harms, such as the enormous numbers of birds dying around human structures including windows and communication towers, and indirect harms such as habitat change, pollution and invasive species.

WAWC member Dr Angus Nurse took the audience on a journey through the principles of wild animal welfare law, describing UK legislation as anthropocentric in approach and often paradoxical. Conflicting rights contentions arose in areas such as the attempted amendment of the Hunting Act 2004, and there were contrasts between controversial issues such as the badger cull and the UK’s commendable commitment to address international wildlife crime.

Dr Carl Soulsbury described the challenges of wild animal welfare in research, made more complex by the non-standard conditions in which such research

is conducted. He called for greater understanding (and recognition) of the impacts of all research techniques on wild animals.

The afternoon session opened with the first report from WAWC’S major scoping review of UK wild animal welfare undertaken by Dr Joana Cruz with supervision from Professor Piran White. Professor White presented their assessment of the state of research and knowledge about welfare stresses for terrestrial wild mammals in the UK, identifying significant gaps in evidence in a number of key areas. Notably, most free-living mammals in the UK have not been the subject of welfare studies, and only a few studies have measured the effects of permitted human activities on behaviour, physiology or welfare, whether before, during or after the event.

The research showed that there were gaps with regard to:

- Monitoring the consequences of stress events on pain, distress and animal suffering;
- The impact on welfare of certain control activities during the reproductive season;
- Assessment of traps in relation to humaneness in field conditions and clarification of humaneness criteria;
- The welfare of species managed as “pests” and subjected to a variety of trapping and poisoning methods;
- Cumulative and interactive effects of different stressors and their impact on welfare.

Please see page 12 for further details of the research project.

The final session of the conference, chaired by Carol McKenna, consisted of four short presentations, followed by audience discussion, covering:

- Animal welfare in a conservation context (Chris Draper);
- Welfare concerns for marine mammals (Sarah Dolman);
- Welfare gaps in UK wildlife trapping (Dr Sandra Baker);
- Misguided human interventions (Dr Liz Mullineaux).

See all the conference presentations in the **Events** section of the WAWC website: wawcommittee.org

Consultations and policy engagement

One of the ways in which the WAWC furthers its aim of providing informed, independent comment on matters affecting the welfare of wild animals is by responding to government consultations.

In 2018, the WAWC submitted detailed responses to two DEFRA consultations on extending the badger cull into Low Risk Areas (LRA) in England and on revised guidance for licensing badger control areas. Both proposals were aimed at contributing to the delivery of the UK government's strategy for achieving Officially Bovine Tuberculosis Free (OTF) status for England.

The WAWC made clear in both responses that, in principle, the Committee opposed the killing of badgers for disease control purposes. The WAWC stated its belief that the programme was ineffective and could not be carried out humanely. The responses called attention to the failure of badger culling in England to follow international ethical principles for wildlife control and general principles for the effective killing of animals for disease control purposes.

In April 2018 the WAWC responded to DEFRA proposals on implementation of the Agreement on International Humane Trapping Standards (AIHTS), raising concerns that the consultation implied support for the fur trade and failed to question the need for routine killing of predatory wild animals in the name of pest control or wildlife management. The WAWC called for a thorough review of the necessity, means and welfare impacts of trapping and killing wild animals in the UK, stating that an overhaul of the whole trapping regulation system in the UK is long overdue.

In previous years, the WAWC has also submitted responses on potential amendments to the Protection of Wild Mammals (Scotland) Act 2002, which regulates fox hunting in Scotland, and to Home Office consultations on the use of wild animals in scientific procedures in Great Britain.

WAWC members have also represented the welfare of wild animals at policy forums including a stakeholder group reviewing the code of practice for mounted fox hunts in Scotland, the Public Petitions Committee in the Scottish Parliament when it considered a petition on the use of glue traps, and the UK government review of its bovine tuberculosis strategy.



The WAWC research project

An early priority for the WAWC was to assess the extent, breadth and depth of the wildlife welfare issues on which it should be working.

As with any stakeholder group, individual members brought their own experiences and concerns to the table and, without exception, fellow members grasped the significance of these and were keen to develop the Committee's thinking on all issues. At the same time, the members were aware that the Committee would have to select and prioritise issues on a consistent, objective, evidence-led basis.

Given that there was no existing scientific review of all the welfare challenges affecting all the sentient free-living wild animals in the UK, the WAWC set itself the not inconsiderable task of compiling such a review.

The intention was to gather together published research about the state of wild animal welfare in the UK, from the perspective of animals' needs, in order to assess the impact of human activity on wild

animal welfare, including the intensity and scale of animal suffering and death directly or indirectly caused. This would help to identify priority welfare areas based on existing knowledge as well as key evidence gaps in the literature.

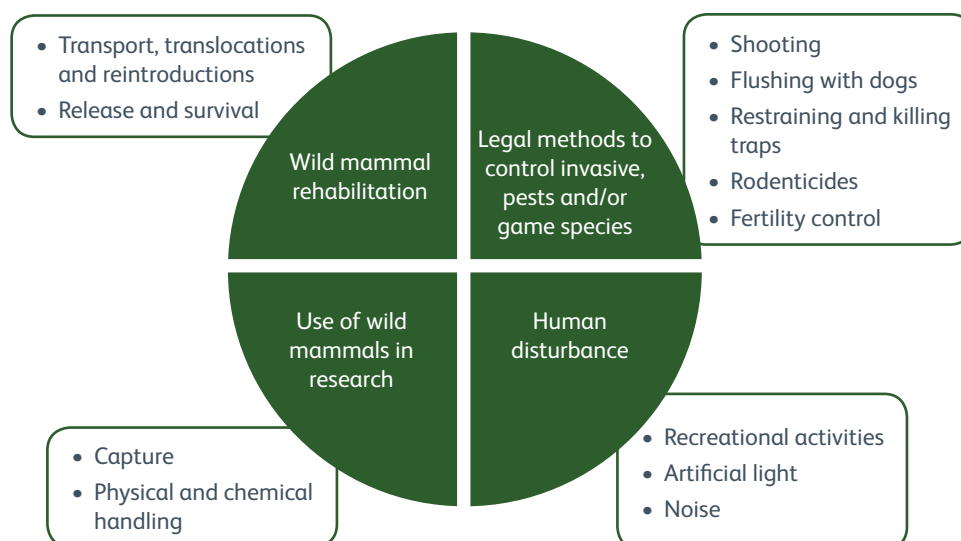
Terrestrial mammals

The first section, undertaken by Dr Joana Cruz of the University of York, supported by WAWC member Professor Piran White of the same university, reviewed scientific evidence relating to the impact of legal and permissible activities on the welfare of terrestrial wild mammals in the United Kingdom.

Only legal methods were considered, such as those used for the control of 'pest', invasive and/or game species, human disturbance, the use of wild mammals in research, and rehabilitation.

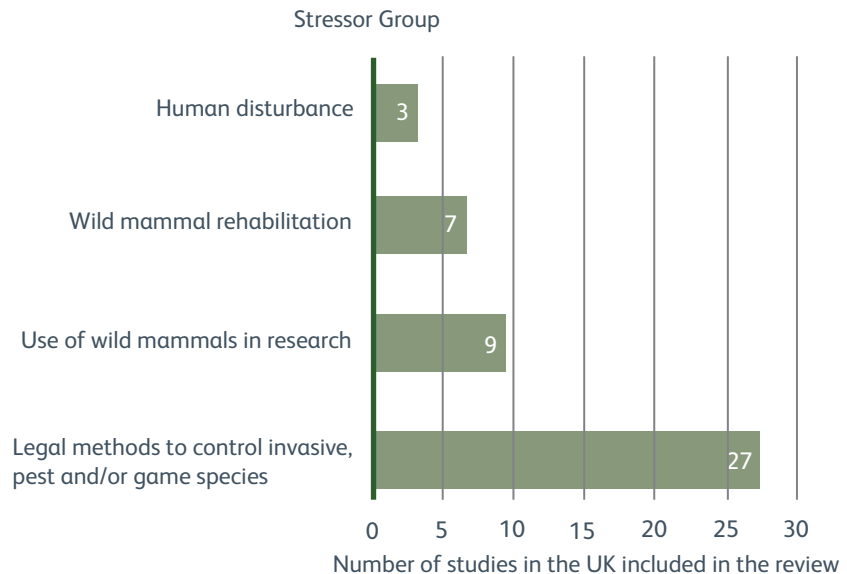
Stressors were divided into groups and sub-groups (Figure 1).

1. Stressor groups and sub/groups



Sifting, sorting and screening of a total of 5,708 papers identified 46 that met the criteria for the project (Figure 2) and these were classed according to stressor group or sub-group.

2. Results: distribution of the 46 studies by stressor group



Within the “control” sub-group – that is, the legal methods used to control invasive pest and/or game species, the greatest number of papers (7) related to shooting, with snaring (6) and rodenticides (5) close behind. Only seven species were the subject of more than two separate papers. The red fox was the focus of the largest number of papers (10), followed by badger (8), red deer (7), Eurasian hedgehog (6), polecat (4), wild rabbit (4), European mole (3), wood mouse (2) and water vole (2). There were single papers for 16 more species.

Finally, the literature was classified on a traffic-light system according to the strength of evidence for the effect of a stressor on behaviour and physiology, or welfare. Assessment of these factors during and after the stressor was ranked as green, whereas if no assessment was made, the evidence was ranked as red (Figure 3). If an assessment was made either during or after the event, this is shown in yellow.

3. Results: strength of evidence (terrestrial mammals)

	Evidence from research on impact of stressor on behaviour or physiology (acute or chronic)	Evidence from research on impact of stressor on welfare	Number of species studied
Shooting	Yellow	Yellow	3
Flushing with dogs	Yellow	Yellow	2
Neck snares	Yellow	Yellow	2
Box or cage traps	Yellow	Yellow	2
Rodent glue boards	Red	Red	0
Killing traps	Yellow	Yellow	1
Rodenticides	Yellow	Yellow	5
Fertility control	Green	Red	2
Use of wild mammals in research	Yellow	Yellow	18
Wild mammal rehabilitation	Yellow	Yellow	4
Recreational activities	Yellow	Red	1
Artificial light	Red	Red	0
Anthropogenic noise	Yellow	Red	1

Among its main conclusions, the review found that:

Most free-living mammals in the UK have not been the subject of welfare studies;

There is a paucity of studies that have measured effects on either behaviour/physiology or welfare BOTH before/during AND after exposure or event (the criteria for evidential strength).

Shooting as a control method has been the focus of a number of studies but there is a need for more data on key aspects for deer and other species, including times to death, escapes of shot-but-not-killed animals, and the impact on welfare of shooting during the reproductive season.

On hunting with dogs, the review found no additional robust scientific evidence that alters the conclusions of the Burns Inquiry on the relative humaneness of different methods for killing foxes;

There is a lack of scientific evidence on methods such as use of neck snares and rodent glue boards, which are likely to pose significant welfare risks, especially to non-target species.

Anticoagulant rodenticides cause suffering in target species, but the welfare impact of primary and secondary poisoning via bioaccumulation in non-target species is unknown.

Limited evidence on fertility control to date suggests does not cause significant adverse effects on behaviour or physiology (in terms of stress), but more information is needed regarding its effects on welfare.

The use of wild mammals in research is highly-regulated, although some research activities such as capture, marking and restraint have potential to cause adverse impacts on suffering and welfare.

Translocation, rehabilitation and release of animals as part of conservation or welfare-orientated initiatives, can lead to suffering of released animals through increased stress

There is little scientific evidence of welfare impacts of anthropogenic disturbance such as recreation, artificial light and noise.

Significant evidence gaps were identified regarding:

Monitoring the consequences of stress events on pain, distress and animal suffering;

The impact on welfare of certain control activities during the reproductive season;

The assessment of traps in relation to humaneness in field conditions and clarification of humaneness criteria;

The welfare of species managed as “pests” and subjected to a variety of trapping and poisoning methods;

Cumulative and interactive effects of different stressors and their impact on welfare.

Marine mammals

Much of the initial effort for the first section was focused on developing a robust methodology for screening and assessing the literature, and this was harnessed for the second section of research, carried out by Joe Perry as part of his Master’s project at the University of York, under the supervision of WAWC member Sarah Dolman and, again, Professor Piran White.

An initial 4,037 records were identified, sorted and screened according to the model devised for the terrestrial mammals paper, resulting in 38 articles for charting (of which 7 turned out to be unavailable).

The admissibility criteria for the results were that they:

- must be relevant to marine mammals in the UK (studies either carried out in the UK or on a resident UK population);
- must pertain to a defined and evidenced direct stressor;
- must pertain to wild marine mammals that are not subject to intensive management schemes;
- must not pertain to non-UK species (e.g. Polar Bear, Stellar sea lion);
- must not pertain to illegal activity.

The greatest number of papers discussed harbour seals (11), followed by harbour porpoise (10), grey seal (10), bottlenose dolphin (4), short-beaked common dolphin (4), orca (1) and long-finned pilot whale (1).

Stressors were placed in three groups and associated subgroups:

- Methods to control populations (culling programmes and acoustic deterrents)

- Disturbance from human activity (bycatch, offshore wind farms, boat traffic, tourism, commercial activity and seismic survey)
- Research and sampling methods (tagging and rehabilitation)

Strength of evidence per stressor subgroup was evaluated in the same way as the terrestrial mammal papers. Thus, culling programmes for marine mammals scored red for both behaviour/physiology analysis, and welfare impact, whilst

bycatch, boat traffic, and rehabilitation activities all scored amber for both. Bycatch also returned the greatest number of results by subgroup, and had the highest number of species studied. Seismic survey and the effects of tagging both scored green for their behaviour/physiology research, indicating that research was undertaken both during and after the stressor. However, neither of these scored as strongly with regard to welfare impact, and both subgroups, amongst others in this review, had a very small number of returned articles.

4. Results: strength of evidence (marine mammals)

	Evidence from research on impact of stressor on behaviour or physiology (acute or chronic)	Evidence from research on impact of stressor on welfare	Number of species studied
Culling programmes	Red	Red	3
Acoustic deterrents	Yellow	Red	1
By catch	Yellow	Yellow	5
Offshore wind farms	Yellow	Red	4
Boat traffic	Yellow	Yellow	1
Tourism	Yellow	Red	1
Dredging	Yellow	Red	1
Seismic survey	Green	Red	1
Tagging	Green	Yellow	1
Rehabilitation	Yellow	Yellow	1

The review concluded that further research was desirable in a number of areas:

- The extent to which diminished welfare (i.e. pain, suffering, stress) can adversely affect the health and survival of a species or population, and the consideration of this in quantifying the risk of a certain stressor
- The geographic prevalence of certain stressors, such as tourism in Scotland, which was not represented in this study
- The acute and chronic implications for marine mammal species if exposed to long-term stressors such as acoustic disturbance from seismic surveys and wind energy
- The potential effects of emerging maritime energy such as increases in wind turbine installation, and the adverse effects of decommissioning
- The cumulative effects of multiple stressors on the long and short-term changes to both behaviour and welfare, such as acoustic disturbance making species of cetacean more

vulnerable to stressors such as bycatch, and tourism exposure making sociable species less likely to flee from boat traffic

- The need for precautionary codes of practices in UK stressors that are less researched, such as harbour dredging, or emerging, such as mineral resource mining and aquaculture.

Next steps

The next section of the WAWC’s review of literature covering the welfare of wild animals in the UK will cover avian species on land and at sea. The Committee is well placed to provide guidance and supervision for this work and is currently seeking funding for the research.

The reviews were delivered to the WAWC in October 2016 and October 2017. The WAWC is encouraging the authors to publish in peer-reviewed journals when their schedules allow. Meanwhile, the WAWC will be pleased to share or discuss further data from the reviews with anyone who has an interest in UK wild animal welfare. Please get in touch at: wildanimalwelfarecommittee@gmail.com



© Alick Simmons

"The WAWC gathers advice from all sides. It's an inclusive body and it can present independent evidence on wild animal welfare. It will work best for both the animals and the humans who live alongside and share the land if we all engage with this Committee and develop a deep, sound understanding of what the issues really are. Because it's only through that way we can come out the other end, with solutions."

Professor Ranald Munro, WAWC conference presentation November 2016

Wild Animal Welfare Committee

Charity No SC045958

c/o 50 Montrose Terrace, Edinburgh EH7 5DL

0131 661 9734

wawcommittee.org wildanimalwelfarecommittee@gmail.com