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Nothing More than 'Anti-Cull Activists': Accusations of Bias and the Politics of Research that Advocates for Non-Human Animals

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Abstract

This paper explores the ethical quandary faced by researchers whose work advocates for non-human animals and whose results conflict with prevalent anthropocentric societal narratives. To problematise the concept of research bias, we qualitatively analyse contemporary political debates surrounding the treatment of animals to ascertain if, how, when, and by whom research can be conducted with scientific integrity whilst advocating for more ethical treatment of other animals. By taking a holistic approach to the issues of bias presented within the remit of human-animal studies (research concerning human-animal relations), this paper firstly addresses the historic ways in which accusations of bias are interwoven within the animal protection movement. We then explore the ongoing ways in which research concerning animal interests are politically targeted due to the threat such research presents to anthropocentric governing policies and societal practices. Finally, we analyse the legitimate causes of bias represented within the emerging field of human-animal studies. Overall, this paper highlights the pitfalls of research that advocates for animals whilst revealing the actual issues of bias that warrant further attention by the academic community.

Keywords

Bias, Politics, Animal Advocacy, Animal Studies

Cover Page Footnote

1. Whilst the authors do not agree with the terms "animals' or "non-human animals" being used to separate humans from other animals, terms such as "other-than-human animal' or "more-than-human animals" are unwieldy and also problematic. Thus, for ease of reading we use "animals". 2. Throughout the paper we use the terms "human-animal studies", "anthrozoology" and "animal studies" interchangeably to refer to research which centres upon the relationships held between humans and other animals. Whilst we understand there are theoretical, ethical and methodological nuances between these disciplines, our focus concerns all fields concerned by human-animal relations. 3. as those set out by the OECD

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Introduction

Few native non-human animals (hereafter 'animals') in contemporary United Kingdom (UK) are as politically polarising as the Eurasian badger (*Meles meles*). The largest remaining terrestrial carnivore of the British Isles, badgers are nocturnal, social mammals who live in underground setts (Silva et al.). Badgers have a long history of persecution, vilified as pests and baited with dogs for recreational sport (Cassidy, Kalof and Taylor), to the extent that badgers received unrivalled legal protection throughout the UK (Sadlier and Montgomery). Since 2013, however, the UK government has endorsed the killing of more than 210,000 badgers in England due to their perceived role in the spread of bovine tuberculosis (bTB) (Badger Trust). Bovine TB is one of the most persistent problems facing UK farmers (Brooks-Pollock and Keeling), and the significant economic cost to farmers, estimated as a median of £6,600 per breakdown (Barnes et al.), has rendered bTB management a vital policy for securing support from rural voters (McCulloch and Reiss). Although badger culling is not implemented in bordering Scotland or Wales, the governmental Department for the Environment, Food and Rural Affairs (Defra) mandates badger culling in England as part of a neoliberal approach to bTB management. Many animal welfare groups and scientists oppose badger culling, citing evidence that bTB is passed primarily from cow (Bos taurus) to cow (Crispel et al.), that there is insufficient evidence to support wildlife culling as a disease management strategy (Langton et al.), and that badgers endure unnecessary suffering as a result of cage-free shooting (Enticott). The badger cull in England concerns a range of stakeholders, from native wildlife and domestic species to farmers, the public, the scientific community, and policymakers. Thus, England's badger cull is an example of a topic of multi-species interest within contemporary society; a case study that we use to introduce the issue of bias in relation to research and policy that involves animals. Specifically, we assess how bias is formed when scientific data, political interests, and animal advocacy do not align and how these issues impact research. This research comes in two forms, one focused upon studies aimed at direct advocacy for animals, and the other which simply advocates for animals as a result of its findings. While our geographic focus is the UK, this article holds relevance for researchers and animal advocates more generally.

Accusations of Bias: An English Case Study

In March 2022, a study was released that independently analysed Defra's bTB records to determine the effectiveness of badger culling as a bTB reduction strategy. Published in a prominent UK Veterinary Journal, *Vet Record*, Langton and colleagues' quantitative analysis spanned all bTB records for the entire cull-policy duration and found no evidence that culling badgers was effective in reducing rates of bTB in cattle. Regions with enhanced cattle biosecurity measures, however, including enhanced herd testing, isolation of infected cows, and fewer cow movements, were statistically more likely to control bTB. The paper gained attention from NGOs, the news media, and the farming community, all of whom were concerned that badger culling was ineffective as a bTB control strategy. Defra responded vehemently to the paper with a series of rebuttals. Firstly, a formal refutation was published in the non-peer reviewed 'letters' section in the same journal edition (Middlemiss and Henderson), and secondly a press release was published on the government website in which the authors were dismissed as 'anti-cull activists' (Defra). Langton and colleagues had professional ties to the animal NGO 'Born Free' and had previously raised legal cases against the government's badger cull, views which Defra suggested invalidated the scientists' research despite its having gone through rigorous peer review. Defra's online statement also discredited the paper's methodological integrity:

> This paper has been produced to fit a clear campaign agenda and manipulates data in a way that makes it impossible to see the actual effects of badger culling on reducing TB rates. It is disappointing to see it published in a scientific journal.

These claims were repeated in radio interviews, magazines, and newspapers on the topic of bTB, as Defra spokespersons attempted to redirect attention from the cull and onto the reputation of the authors and the credibility of their research. In a bizarre turn of events, Defra's own analysis of the data (published alongside their formal rebuttal) was later retracted, and they were forced to apologise as their data had been incorrectly calculated (Langton et al., 'Badger Culling'). Despite their revised graphs supporting the findings of the same independent research they

sought to contest, Defra continued to insist that badger culling worked. When questioned in parliament about their calculation error, the Parliamentary Under-Secretary of State for Defra stated they had 'nothing further to add on that topic' (Churchill).

Throughout the past decade of the controversial culling operation, Defra and cull supporters have cited a study by Downs et al. as evidence of the effectiveness of badger culling to reduce bTB herd breakdowns. Whilst this study's analysis of three cull areas from 2013-2017 found declining rates of herd infection, the study cautioned that (unlike Langton and colleagues' analysis) other potential factors such as biosecurity were not measured and so it was unclear what measures were responsible. It was also unreliable to assume that results were applicable elsewhere in the country. Indeed, policymakers routinely overlook the Cluster Sample Bias (CSB) present within this cited research. As explained by Veganay, CSB risks 'stakeholders [being] misled by the implied effectiveness of the intervention on a national scale' (2). Thus, the analysis by Langton and colleagues was more reliable owing to their analysis including all cull areas and disease prevention measures over the duration of the country's ten-year bTB control strategy. As a case in point, within twelve months of the Downs et al. study being released, official figures revealed a 130% increase in bTB in one of the originally sampled cull areas (McGill and Jones), an issue yet to be publicly addressed by policymakers. Thus, issues of bias and evidentiary cherry-picking are deeply rooted within the history of England's badger culling policy. What is important about the Langton et al. and Defra confrontation for our paper is that the implications of the accusations of researcher bias projected by a government body are significant and go beyond the fate of badgers. Defra's attempts to delegitimise independent researchers through accusations of bias informally gags researchers from scrutinising government policy. To quote Parkhurst, 'Evidence *matters* for public policymaking, the *misuse of evidence* matters as well' (original emphasis, 4). Yet, what we see with the badger cull debate is that accusations of bias are being wielded as a tool to discredit researchers and their work. This latest dismissal of scientific evidence ignores the potential positive impact that could be achieved for animal welfare, conservation, and the economy, were policymakers to engage with science that

supports alternative practices; namely, those that do not support anthropocentric norms. In the first instance, this approach places policymakers in direct opposition to the UK government's own Higher Education (HE) Research Impact Agenda.

Research Impact and the Animal Turn

Introduced in 2006, the UK HE Research Impact Agenda placed emphasis on the need for research to benefit the end user. Funding streams were introduced based on potential impact factors and 'high impact' research was a status reserved for research with social, economic, or cultural benefits. The approach has been adopted across the world as academics are increasingly encouraged to be accountable for their societal contributions (Chubb and Reed). Yet this move disregards the already well-entrenched biased relationships between stakeholders and policymakers which impacts the ways science is engaged with.

It has already been noted that the relationship between the agricultural industry and policymakers is longstanding (Daugbjerg and Swinbank) and has often led to suboptimal conditions for taxpayers and consumers (Grant). Environmental stakeholders (animals, plants, and ecosystems) are also disproportionately impacted by rural policies which prioritise farming interests. As posited by Grant, the relationship between farmers and government 'raises fundamental questions about how democracy really functions in terms of the key question of "Who benefits?"' (271). From the response to the Langton report, it seems that researchers who see animals as the end user of high-impact research may be at risk of scrutiny for challenging government agendas which promote the continuation of animal exploitation. Despite such challenges, animals are becoming more central to academic inquiry.

The increasing scholarly interest in the significance of animals in human societies has been dubbed the 'animal turn' (Ritvo) and the emergence of multi-species ethnography and scholarship 'beyond the human' are examples of new philosophical thought concerning animals as both actor and participant within multi-species spaces (Kirksey and Helmreich). Whilst the

animal turn is reflected in a range of disciplines known by various names, for ease of reading we use the term 'human-animal studies' hereafter, as an umbrella term for research that focuses on humans and animals.

The animal turn demonstrates a philosophic pursuit of ethical inquiry concerning human-animal relations, and researchers are often compelled to consider the impact of research that primarily concerns animals, as highlighted by Lynda Birke's question of the rising interest in human-animal studies: 'What's in it for the animals?' For Birke ('Naming Names'), the end user of human-animal research is ultimately the animal, and so research concerning animals should benefit them. Of course, not all animals can be beneficiaries. For example, not all research results in an animal's liberation from the exploitative systems under investigation. Similarly, research intended to assist one animal group may negatively impact another. In such cases, we suggest that the research's potential to prevent further animal suffering ought to be a prime consideration.

The case of Defra's condemnation of Langton et al.'s findings, however, has led to questions being raised amongst academics whose research centres on improving the lives of animals. Whilst Defra's accusations of bias were rooted in claims of a predisposed agenda, in this paper we reflect upon bias's various forms and how this concept can hinder efforts to improve the lives of animals. Through a range of examples, we explore bias in terms of stakeholder interests, motivations, and demographics. First, we reflect on the ways biases are interwoven throughout the history of the animal protection movement. Second, we explore the ways researchers concerned with ethical animal treatment are subjected to accusations of bias, in what situations these accusations can occur, and how researchers are often forced to search for impossible objectivity. Finally, we suggest a shift in focus to the more insidious issues of legitimate biases encountered within human-animal studies and how these may be overcome to protect research integrity and animals.

Ethical Statement from the Authors

First and foremost, we offer transparency regarding our own theoretical, ethical, and economic position. As human-animal studies scholars, the contributors to this paper place equal consideration upon subjects regardless of their species. Secondly, the lead author, whilst pursuing postgraduate human-animal studies research, is at the time of writing also employed by Badger Trust, the primary animal NGO in opposition to badger culling, though the views expressed in this article belong to the author. Whilst the ongoing badger culling debate has inspired the creation of this paper, it is not the focus. Rather, it is focused upon the concept of bias itself, and what this term means for research integrity, impact, and animal protection.

1. A Historic Overview of the Animal Protection Movement and Interwoven Issues of Bias

The APA Dictionary of Psychology (n.p.) defines bias as 'an inclination or predisposition for or against something'. Biases are formed from our past experiences, current knowledge, emotions, instincts, and cultural/societal environments (Oberai and Anand). Many of these biases are unconscious; some we are aware of and may try and compensate for. Politics also informs bias. As Howe says, politics is entangled with researchers' lives, whether it be through academic aims, funding sources with strategic agendas, or lobbyists for economic, ideological, or social concerns. The same is true for government policymakers. The extent to which researchers' and government policymakers' agendas are mutually inclusive or exclusive will determine the level of conflict between stakeholders. Indeed, we only need to trace the history of the animal protection movement to see how accusations of bias are interwoven with research that appears to advocate on behalf of animals.

The first bills emphasising animal cruelty appeared in the UK Parliament in the first decade of the nineteenth century. They did not pass, but they continued to appear until in 1822, Parliament passed Martin's Law, the first animal cruelty statute that forbade 'the cruel and improper treatment of cattle' (Donald 7-8). Richard Martin, an MP and animal advocate who drafted the statute, was a constant source of controversy, and both he and his law were ridiculed by those who saw animal advocacy as trivial (Fairholme and Pain 30-32). Two years later, the

Society for the Prevention of Cruelty to Animals (SPCA) was founded in London by a group of advocates including Martin, built on the same sentiments that drove such legislation. Laws and organisations dedicated to protecting animal welfare were the product of research into the conditions to which humans subjected animals within contemporary society. Martin's Law dealt with animal farming while the SPCA originally focused its attention on working animals such as horses used in the coal mining industry, all visible labouring animals in everyday life. A decade later in 1835, as concern for other animal groups in human society grew, Pease's Act expanded animal cruelty legislation in England to domestic animals, animal sports like cockfighting, and the slaughterhouse industry, on the basis of years of additional data that drove the concerns of legislators and protection groups. That nineteenth-century activism was borne of both religious and intellectual motivations. 'For Anglican evangelicals, Quakers and Methodists in particular, the fate of animals in this world and the next became an important issue', argues Donald (5). Such sentiment was reinforced by the work of Darwin, which was highly influential in shaping public opinion concerning animals.

Those with vested interests in acts of animal cruelty constantly criticised such efforts as tinged with bias, but originally such criticisms were gendered. While 'supporters of the abolition bills were sure that true gallantry and manliness had nothing to do with brutality', those opposed argued that the men passing such laws were being influenced by overly sentimental women (Donald 9). Gender bias claims would continue throughout the century, as women became more and more involved in animal protection issues. The Battersea Dogs' Home, the Horse Trust, and the Royal Society for the Protection of Birds were all founded in the nineteenth century by women to accompany the largely male-dominated RSPCA (Donald 2).

Women also led the anti-vivisection movement against the use of animals in research. Frances Power Cobbe founded the National Anti-Vivisection Society in 1875. Her advocacy, combined with that of other feminists, led to Britain's 1876 Cruelty to Animals Act, the first law regulating the use of animals in experimentation. The next year, Anna Sewell's Black Beauty was published, followed in 1898 by the founding of another Cobbe organisation, the British Union for the Abolition of Vivisection. These efforts were significant, but they also gave male

opponents of such laws and those with vested interests in animal-use industries an opportunity to argue that women's emotionalism invalidated the facts they presented. Most of the women involved in anti-vivisection movements were also feminists arguing for the franchise, only further encouraging opponents to pillory their politics as driving their advocacy and research (DeMello).

The history of bias attacks against research-based advocacy in the nineteenth century was mirrored by the entwined politics of animal industries. Food production and distribution and animal research were interpreted as valuable to society by those in power, generating a governmental interest in their continuance. Lobbying efforts on the part of animal-use industries made the case that humans needed such work to remain productive and ensured that laws would protect their viability and give them a competitive advantage in international markets. There was, in other words, bias among those making accusations of bias against critics of animal industries. It continued into the twentieth century.

Applied research continued in all disciplines, but it reached its apotheosis in animal studies in the late 1960s and early 1970s, when a group of students and intellectuals at Oxford created the Oxford Group, dedicated to the academic framing of animal rights issues. Among others, Richard Ryder and Peter Singer developed a position that led to works like Singer's *Animal Liberation* and helped generate the discipline of critical animal studies, applied research that sought changes to exploitative human-animal relations (Garner and Okuleye). While animal welfare research focussed on the humane treatment of animals under human control, animal liberationists were openly questioning whether it was permissible for humans to control other species at all. Combined research efforts concerning animal welfare, animal behaviour, neuroscience, and animal rights, have since contributed to changes in animal utility in Britain. The use of great apes for biomedical research was banned with the passing of the Animals (Scientific Procedures) Act 1986 and in 2022 the Animal Welfare (Sentience) Act formally recognised all vertebrate animals, decapod crustaceans and cephalopod molluscs as sentient beings for the first time.

Still today, whether or not an outcome of scientific study is favourable to a governmental agenda may dictate whether scientific advice is ignored or reshaped to further governmental goals. While researchers' scientific integrity is allegedly held to account by institutions following research best practices, cases of academic ethical misconduct still occur (Roberts and St. John). Misconduct is also present within governments. Rushefsky claims science has been misused by governments to support agendas by cloaking and thereby legitimising decisions in 'the respectable neutrality of science' (47). Politicising science has thus become a form of control. Where scientific results may reveal areas that become problematic and uncomfortable to governmental policymakers, their supporters, and donors' aspirations, research itself can become criminalised. Examples include the 'ag gag' laws of the US, Canada, and Australia aimed at gagging those questioning or speaking out against harmful practices within the agricultural sector (Ceryes and Heaney). Access is limited to information regarding the industries and criminalised acts of collecting data, videoing, or photographing without permission (Ceryes and Heaney). These laws came into effect due to lobbying by the agricultural industry and those that support them. A proposed UK government anti-lobbying bill in 2015 suggested that researchers with government grants would be blocked from lobbying for changes in law and legislation (McKie). The bill eventually excluded researchers (New Scientist), however, the fear of 'muzzling' scientists has not completely subsided (McKie).

2. The Search for Infallible Objectivity

As we have outlined above, historic attempts to prevent advances in animal protection policy have used gender bias, interest group politics, and scientific exceptionalism as tools to make their case; tools that, largely because of that history, are still dominant in modern counters to animal advocacy. In all such cases, attempts were made to discredit researchers based upon their supposed lack of scientific objectivity. According to Haraway, 'the only people who end up actually believing and, goddess forbid, acting on the ideological doctrines of disembodied scientific objectivity – enshrined in elementary textbooks and technoscience booster literature – are non-scientists' (576). However, this is a problem when non-scientists include global leaders, policymakers, and the majority of the human population. Douglas argues that the value-free

ideal of science is bad for science because it encourages the researchers themselves to believe that value-free objectivity exists. In reality, objectivity is not absolute, and pure value-free objectivity is unobtainable (Wilson). However, Douglas points out that when someone claims an observation to be 'objective' they are really saying 'I trust the observation, and so should everyone else' (116). Haraway proffers that scientific 'objectivity is not about disengagement but about mutual and usually unequal structuring' (595) that places greater credence on some positions over others. For academics concerned with animal wellbeing, while the search for infallible objectivity will forever be unattainable, reflexivity can and should be applied to ensure researcher bias is reduced.

One motivation leading researchers to advocate for their participants likely arises from their long history with, and intimate knowledge of, a particular group of stakeholders. Familiarity with one's subjects simultaneously empowers and subordinates a researcher to their subjects, thanks to the intersubjectivity of identities experienced by each (Jauregui). It is both the intimacy one feels with one's interlocutors and the juxtaposition of power relations that creates 'affective engagements' which influence how knowledge is constructed and discussed (Jauregui). Researchers, particularly ethnographers, endeavour to fairly represent both the relationships between and the views of their interlocutors, and being moved toward advocacy is a natural outgrowth of these attempts (Layton). Kirsch explains that 'activism is a logical extension of the commitment to reciprocity that underlies the practice of anthropology' (178). Singer adds, 'From this perspective, all of anthropology is advocacy because all activity is goal-oriented and has consequences in social life' (548). The same might be said of human-animal studies, as many scholars embrace anthropological methods in their research (see Hurn).

Human-animal studies scholars often attempt to problematise issues arising from the practice of 'social othering', in which various social or ethnic groups, subcultures, and other species are placed in opposition to 'normal' society (see Haraway). For example, common vegan arguments 'other' farming communities by painting them as destroyers of wild spaces or animal subjugators. Farmers on the other hand, 'other' activists, painting them as subverters of familial patterns of employment, while framing themselves as protectors of the countryside and traditional 'values' (Craven). Such othering finds its way into academia, where the personal

choices and values embraced by researchers may result in their research itself becoming suspect. For example, those making the choice to represent animals as equal subjects, rather than objects, of research face being 'othered' themselves, and their research discounted as 'mere activism'. Research may be delegitimised in light of the researcher's personal belief systems, much the same way one's gender, race, country of origin, or institutional affiliation may be used to cast aspersions upon one's motivations and results (Birke, 'Sitting on the Fence'; Hendrix).

Therefore, the practice of critical reflexivity is needed to understand one's 'complicity with her interlocutors' problematic perceptions and practices' while attempting to remain grounded in 'acceptable' academic theory (Jauregui 64). This reflexivity allows researchers further opportunity to adequately (or fairly) represent both the actions of interlocutors and the ways in which interlocutors *feel* about their actions (Jauregui). This reflexivity, however, may also result in further affective entanglements with one's research participants. Rather than viewing these entanglements as problematic, Scheper-Hughes exhorts researchers to become both 'politically committed and morally engaged' (415) with their participants and societal issues. Indeed, observation alone is hardly a neutral position (see Douglas; Scheper-Hughes), and rather than ensuring equal representation may instead result in the retention of inequitable power relations through the act of witnessing (Haraway; Hooper et al.). Non-involvement further fails as it attempts to place the researcher 'outside' human events, a position which is naturally impossible for a human to achieve (Scheper-Hughes). Academic non-involvement may even be considered selfish; 'sitting idly by taking field notes' serves only the researcher and their readers, not the participants (Scheper-Hughes 411). Scheper-Hughes argues that political and moral engagement is 'theoretically valid and practically advantageous' (Kellett 26), as it leads to further engagement with one's participants and the larger community. Therefore, advocacy may be a more 'ethical' choice (and a natural result of such research) than so-called unbiased approaches. This does not mean, however, that there are no issues of legitimate biases which need addressing within human-animal studies.

3. Legitimate Issues of Bias within Human-Animal Research

Anthropocentric Companion Species Bias

While critical animal studies has often focused on the plight of the most vulnerable animals under human control, particularly those animals killed for food or used in scientific research, some has instead emphasised the implications of interspecies relationships for humans, with companion animal research dominating in some disciplines. Such heavy focus on companion animal research often comes with the supposition that animals are good for human health, an anthropocentric sentiment that promotes the ownership of animals (Herzog). This narrative undermines the importance of animals as intrinsically significant beings and also under-represents the interests of non-domesticated, wild, or free-ranging animal groups.

A second area where anthropocentric bias prevails is that of animal-assisted interventions (AAI). Encompassing the use of service animals (to assist humans with disabilities), therapy animals (serving to reduce anxiety, provide companionship during physical or mental therapeutic practice, hospital stays, and in nursing homes, etc.), or education animals (such as in school reading programs), AAI is widely accepted as 'beneficial' to humans (Fine et al.). Despite this widespread belief in the power of AAI, little empirical evidence exists that demonstrates that these interventions positively impact human health or welfare (Chur-Hansen et al; Crossman and Kazdin; Fine et al.). Instead, published studies rely on inconsistent, anecdotal, or unreproducible data which could place their findings in question (Bernabei et al.; Serpell et al.). As Herzog explains, part of the problem may lie in *who* is performing the research.

As professionals interested in or working with animals, scientists investigating AAI may suffer from unconscious bias which arises from their ongoing exposure to media and public opinion that reinforces long-held beliefs that interacting with animals makes humans somehow 'better' (Serpell et al.; Crossman and Kazdin). As an example, Serpell et al. and Rodriquez et al. point out that studies of AAI efficacy further suffer because investigators lump clinical diagnoses with few commonalities together (such as autism spectrum disorder, trauma, and depression), making systematic analysis impossible. An individual human's experience with and feeling about animals also heavily influences their responses to AAI, and as such, limits the wider applicability

of study findings. Inconsistencies in the terminology used, small sample sizes, inability to identify the root of positive treatment effects, general lack of empirical evidence, or an inability to synthesise current findings due to the interdisciplinary nature of AAI researchers and the type of publications chosen for disseminating results: anthrozoological, biological, veterinary science, human developmental science, psychological, nursing, etc. (Fine and Anderson; Nieforth et al.) all serve as illustrations as to why bias is an issue which needs to be overcome within fields concerning human-animal relations.

Economic Conflicts of Interest

Corporate sponsorship with research institutions highlights an insidious bias within the field of human-animal studies. Among ISAZ's ('ISAZ') corporate sponsors, for example, are several companion animal food companies including *Purina,* one of the largest pet food manufacturers in the world, one with a record of animal rights abuses (Eurogroup for Animals). Pet food companies contribute to mass animal killing on a global scale, and processed food for companion cats and dogs accounts for a quarter of the environmental impact of all meat production (Okin). The economic conflicts of interest are also clear in other realms, as the pet food industry has been implicated in intentionally skewing FDA data on the relationship of grain-free pet foods to heart disease in dogs (Santoro). Thus, what can be genuinely problematic forms of bias are when entire areas are dominated and dependent on funding bodies with ties to industry or special interest groups (Bero and Grundy). If organisations claim to represent human-animal relationships broadly, then more effort should be made to encourage ethical behaviour of its corporate sponsors and to represent animal groups more fairly.

Authors, academic institutions, and publishing bodies should ensure that these potential economic conflicts are sufficiently addressed to safeguard animals and research integrity. Of course, not all economic relationships can be completely free from potential accusations of bias. Academic research is being increasingly driven by monetary incentives and university contracts are often precarious (Bone). It is not unheard of, therefore, for researchers to work for environmental or animal NGOs whilst pursuing independent research activities. Whilst there are genuine reasons to critique the biases presented by these organisations (for example, the

focus on large charismatic species or campaign issues which generate the most economic funds, see MacDonald et al.), the affiliation of scientists to such groups need not lead to scientific misconduct if reflexivity is practised and potential conflicts of interest are sufficiently addressed (Bero and Grundy).

Social In-fighting

A final way in which legitimate biases can be observed within human-animal studies research is in the infighting between academics with opposing views on socially prominent issues such as human-wildlife conflict and zoonotic disease control. Discourses surrounding free-living cats, for example, are often emotionally charged and polarising, especially when concerning the lives of cats, birds, or endangered endemic species (Hill; Stoskopf and Nutter). Data on cat-wildlife conflict is invariably sought out to support or reinforce inherent bias (Foderaro and Lorentzen; Nickerson) and conservation scientists have accused peers of bias and misrepresentation of the data (Loss and Marra; Lynn et al.). Accusations such as these threaten to derail the scientific process by negating any unpopular findings as pseudoscience, regardless of methodological rigour.

Overall, studies related to wild or 'uncontrolled' 'pest' animals continue to be taken out of context by the media, the public, and scientists (Hill; Lynn et al.). Hill, for example, noted how individuals engaging in online debates will quote figures from different sources to either support or refute claims concerning the impact of free-living cats on the lives of wild animals. Where The Royal Society for the Protection of Birds (RSPB) states there is no evidence that cats in Britain are a threat to bird populations, this is often quoted by those in favour of free-roaming cats. This in turn has led to bird watchers questioning whether the RSPB ignores contrary data out of a fear of losing some of its membership (Hill). Yet, the RSPB bases its stance on data relevant to European and British contexts, which differ to North America and Australasia where bird populations are reported as negatively impacted by cat predation. Similar examples can be found for badgers. The controversy of badger culling, for example, is downplayed by the National Trust, one of the largest nature NGOs and the largest farmland owner in Britain. Whilst the National Trust confirms that no badger culling is permitted on their

land, they also claim to recognise the role of badgers as vectors of bTB. This middle-ground position could appease both pro and anti-cull members and farming tenants. Yet, in so doing, the Trust overlooks the insignificance of badger-cow transmission. Swift et al. found a lack of evidence to support the role of badgers in bTB cow infection, and Defra's own wildlife surveillance has shown as little as 1% of badgers test positive for bTB across certain cull areas (Defra, 2018).

Furthermore, 'the vehemence with which proponents of opposing views argue their points is inversely proportional to the quality of data available to support their positions' (Stoskopf and Nutter 1361). However, this needn't be the case. Jaakkola et al. analysed a scientific review on the welfare of captive killer whales as a case study to demonstrate how selective referencing, overinterpretation of the data, misleading word choice, and fallacious argumentation were presented. The critique was co-authored by scholars who declared they were not unanimous in their personal views on the ethics of keeping whales captive (Jaakkola et al.), yet through collaboration, they could focus on the facts (and fallacies) of the case study. Thus, as well as academics using reflexivity, journal editors should encourage more exchanges by 'inviting reviewers from opposite camps and asking authors to acknowledge alternative views' (Calver and Fleming 18). The opening of dialogue between academics undertaking research might serve to better represent the interests of multi-species stakeholders.

Conclusion

Research concerned with promoting ethical human-animal relations is intimately associated with often illegitimate accusations of bias directed at both the researcher and the research method. Whether it be the 'feminine hyper-sensitivity' and emotional biases men claimed of women who were advancing animal protection in the 1870's, or the branding of scientists as nothing more than 'anti-cull activists' in relation to contemporary scrutiny of governmental wildlife management policy, it is clear that accusations of bias have been and continue to be used to dismiss research which challenges anthropocentric societal norms. Whilst reflexivity and careful methodological design can go some way towards protecting researchers from accusations of bias, the pursuit of infallible objectivity concerning other animals is unrealistic in practice. With

increasingly competitive and precarious academic contracts, researchers often opt to work in industry roles whilst pursuing independent research. For human-animal studies researchers this can mean working in animal advocacy organisations, an association that alone opens up researchers to accusations of bias and to their motives and research methods being called into question. A deep understanding of animal stakeholders gained through lengthy and meaningful research encounters, combined with the view that research concerning animals should offer some benefit to them, all contribute to a subjectivity that risks scholars being branded as biased as a way to undermine the findings of their research. Finally, through close inspection of the contemporary field of human-animal studies we have identified three key areas of legitimate bias that require prompt address: the anthropocentric promotion of animal use, the reliance on funding bodies with ties to industry or special interest groups, and infighting between academics over polarising animal issues. We have argued throughout this paper that bias can be and ought to be minimised by researchers themselves through reflexive practice, but the most notable is the absence of responsibility held by those in editorial or governing positions of power. Dismissal of research should only be possible with the accompaniment of countering peer-reviewed evidence, and for those journals publishing research related to controversial topics, reviewers should be sought from opposite camps to open conversations and broaden reflexive perspectives.

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