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Animal sentience science and policy

Commentary on [Rowan et al.](#) on *Sentience Politics*

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Abstract: Animal sentience research cannot be divorced from its ethical and political implications. For example, discovering which animals are sentient is vital for deciding which require welfare protection. Two legal case-studies illustrate the importance of scientists in such debates: the [UK Animal Welfare \(Sentience\) Act 2022](#) had input from animal sentience researchers, whereas the [US Animal Welfare Act 1966](#) did not. The former defined sentient animals much more plausibly than the latter. I accordingly argue that sentience researchers should inform policy, and that this is achievable without sacrificing scientific integrity.

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In their fascinating target article, Rowan et al. (2021) describe the coevolution of animal welfare science and policy. By commissioning the [Brambell Report \(1965\)](#), the UK parliament essentially initiated welfare science. A scientific consensus has since emerged that at least some animals are sentient, contributing to successive welfare laws acknowledging this (Goldsworthy & Robertson, 2021; Rowan et al., 2021). However, in her thought-provoking commentary, Marian Stamp Dawkins argues that welfare policy-making should be separated from the science of animal sentience (Dawkins, 2022). I would disagree with Dawkins's fundamental objection – that scientific uncertainty justifies separating sentience science from welfare policy – and I believe that sentience researchers should engage with policy debates.

To matter ethically, animal welfare must assume sentience (Duncan, 1996; Fraser et al., 1997). Animal sentience research accordingly tackles scientific questions of huge ethical and political importance. Consider the distribution question: Which animals are sentient? By ignoring evidence for sentience, we may condemn countless sentient animals to suffer without legal protection. Conversely, wrongly attributing sentience to non-sentient animals could lead to unnecessary legislation that damages crucial industries, from food to pharmaceuticals. This distribution question is a major headache for legislators trying to recognise animals as sentient beings.

How should sentience researchers contribute to science-based policy questions such as defining the scope of animal welfare law? Because ethical and political decisions often demand lower evidential standards than science (Birch 2017), Dawkins warns that engaging with these debates can tarnish researchers' scientific integrity. This is a valid concern, but scientific integrity does not matter only in science. Without scientific knowledge, policymakers must rely on assumptions, biases, and human interests. These are inaccurate

(or at least incomplete) information sources, which would compromise the scientific integrity of any resulting legislation. Either animal sentience research gives us some additional knowledge, in which case it should inform policy, or the field tells us nothing, in which case it's a useless scientific discipline. We cannot separate sentience research from policy.

Although scientists often emphasise what is still unknown, empirical research obviously reveals some information about animal sentience (Birch et al., 2022; Paul et al., 2020; Sneddon et al., 2014). My colleagues and I recently developed eight criteria, each of which provides some evidence for sentience (with a focus on pain; Birch et al., 2021; Crump et al., 2022). A key aim was to distinguish simple reflexes (an explanatory alternative to pain) from complex and flexible responses consistent with pain experience. For example, motivational trade-offs in hermit crabs (Appel & Elwood, 2009; Elwood & Appel, 2009) and conditioned place preference in octopuses (Crook, 2021) are responses to injury that go beyond simple reflexes. Such evidence isn't proof of pain, but does increase its likelihood in these invertebrates.

When conveyed to policymakers, this kind of scientific evidence leads to more sensible judgements and better policy. For example, we developed our criteria for a UK government report, which recommended regarding all cephalopod molluscs and decapod crustaceans as legally sentient (Birch et al., 2021). The government responded by including both taxa in the [Animal Welfare \(Sentience\) Act 2022](#). Although our report acknowledged and identified evidence gaps, the methods were quantitative, empirical, and ultimately grounded in science. Moreover, whilst the Animal Welfare (Sentience) Act can be criticised for other reasons (e.g., insects weren't even considered for inclusion), this legislation does reflect a coherent first approximation to answering the distribution question. Sentience research enhanced the scientific integrity of policymaking, with potential welfare benefits for billions of cephalopods and decapods.

Compare this to the [US Animal Welfare Act of 1966](#), which exemplifies the perils of science-free policy. This legislation does not use either the concept or the term "sentience," although the link between sentience and welfare makes the distribution question relevant to its scope. Moreover, the Act's definition of "animal" is infamously incoherent. A horse is covered whilst being used for research, but that same horse would be excluded if it were at a show. Dead hamsters are protected, but live rats are not. No animal sentience researcher would justify such answers to the distribution question. The principles enshrined in this legislation – that human usage affects animals' need for protection, and that dead rodents deserve more concern than live ones – are patently absurd. The US Animal Welfare Act is based on human sentiment and commercial interest, to the detriment of animal welfare.

Dawkins does highlight an important issue, however: engaging with policymaking should not compromise scientific integrity. Such an outcome would set back both sentience research and researchers' ability to inform future policy. To preserve scientific integrity, sentience researchers must be transparent about the basis of their conclusions and recommendations. Our report, for example, found "very strong evidence of sentience" in octopuses, which we defined as satisfying seven or eight criteria. The meaning of our pronouncement, and the evidence underpinning it, was explicit. Such openness also enables peers to find and probe holes in our work. This, to me, is the essence of scientific rigour: one group proposes a theory to explain empirical evidence, and others try to dispute it. As such, I believe that animal sentience research can strengthen animal welfare policy without compromising scientific integrity.

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