

ANIMAL SENTIENCE SHOULD BE THE KEY FOR FUTURE LEGISLATION

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This Article posits that changes in U.S. laws and policies regarding animal experimentation depend on the recognition of animal sentience. Sentience—distinct from cognition and self-awareness—is the ability of an animal to experience pain, pleasure, and other emotions. First, this Article

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reviews the reasons animals are still used in biomedical research and the relevant characteristics of U.S. law. This is followed by a discussion of sentience and the concepts of cognition and self-awareness, and a discourse on societal interests. The Article concludes with an analysis of six bioethical principles considered central to the future of animal experimentation. Overall, conferring sentience would lead to the legal recognition of the moral status of animals. However, such change could only happen with true partnership between veterinarians, scientists, ethicists, lawyers, animal behaviorists, as well as representatives of the public.

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I. INTRODUCTION

While humans hold numerous beliefs about animals and their relationship with humans, there are four major patterns: (1) animals kept as companions or service animals; (2) animals raised for food, clothing, or labor; (3) animals used in entertainment (e.g., animal acts, sports killing, and racing); and (4) animals used for research and testing.¹ Although this Article will concentrate on ethical and legal considerations regarding animals in research, it must be noted that ethical and welfare implications remain for animals in all four of the aforementioned categories.²

In the United States the central federal law governing the humane care and handling of animals used in research is the Animal Welfare Act (AWA), enacted in 1966 in response to public concern over the theft of pets, which were then sold to research laboratories.³ The Office of Laboratory Animal Welfare has not established a set of basic bioethical principles—akin to those applying to clinical trials with humans—in

¹ Catherine E. Amiot & Brock Bastian, *Toward A Psychology of Human-Animal Relations*, 141 *PSYCH. BULL.* 6, 6–7, 11, 16–22 (2015).

² Jordan O. Hampton et al., *Animal Harms and Food Production: Informing Ethical Choices*, 11 *ANIMALS* 1225, 1225-1227 (2021); J.C. Pritchard et al., *Assessment of the Welfare of Working Horses, Mules and Donkeys, Using Health and Behaviour Parameters*, 69 *PREVENTIVE VETERINARY MED.* 265, 266-67, 271 (2005); *Animals Used in Entertainment, Shows, and For Exhibition*, *AM. VETERINARY MED. ASS'N*, <https://www.avma.org/resources-tools/avma-policies/animals-used-entertainment-shows-and-exhibition> (accessed Feb. 12, 2024).

³ Animal Welfare Act, 7 U.S.C. § 2131 (1966); see Bernard Unti, 'Concentration Camps for Lost and Stolen Pets:' *Stan Wayman's LIFE Photo Essay and the Animal Welfare Act*, *HUMANE SOC'Y OF THE U.S.*, 2007, at 1 (explaining how the AWA addresses the problems of pet theft and laboratory animal cruelty).

U.S. legislation pertaining to animals.⁴ The bioethical principles governing the use of humans in biomedical experimentation stem from a well-documented history of ethically questionable experiments and are codified in the Nuremberg Code and the Belmont Report.⁵ The Report, which does not address or apply to animal studies, was pivotal to formalizing the bioethical dimensions for research with human subjects: beneficence, non-maleficence, autonomy, and justice.⁶

In reference to animal studies and unlike the United States, in the United Kingdom and many European Union countries it is legally mandated that researchers conduct a harm/benefit analysis (HBA) and apply the principles of the 3Rs (i.e., replacement, reduction, and refinement) when proposing and before commencing animal experiments.⁷ While discussions on HBA and the 3Rs are often part of Institutional Animal Care and Use Committee (IACUC) deliberations, they are not specifically mandated by United States law, as is the case in other countries.⁸ Notably, in 2022, British domestic law recognized animals as sentient.⁹ Sentience is defined as the ability of an animal to experience pain, pleasure, and other emotions; it is different from and should not be conflated with cognition and self-awareness.¹⁰ Similar or equivalent laws do not exist in the United States, though anti-cruelty laws list

⁴ Rebecca L. Walker, *Human and Animal Subjects of Research: The Moral Significance of Respect Versus Welfare*, 27 THEORETICAL MED. & BIOETHICS 305, 305-11 (2006); see also Raanan Gillon, *Defending the Four Principles Approach as a Good Basis for Good Medical Practice and Therefore for Good Medical Ethics*, 40 J. MED. ETHICS 111, 111 (2015) (arguing that the four principles approach affords a good and widely acceptable basis for “doing good medical ethics”).

⁵ OFF. OF THE SEC’Y, DEP’T OF HEALTH, EDUC., & WELFARE., THE BELMONT REPORT: ETHICAL PRINCIPLES AND GUIDELINES FOR THE PROTECTION OF HUMAN SUBJECTS OF RESEARCH (1979) (the Nuremberg Code emerged from the criminal trials of Nazi physicians at the end of World War II. Three decades later, the Belmont Report in the United States summarized the basic principles of research on human subjects).

⁶ *Id.*

⁷ Ngaire Dennison & Anja Petrie, *Legislative Framework for Animal Research in the UK*, 42 IN PRAC. 488, 488-90 (2020) (discussing the requirements to implement the 3Rs and the requirement to weigh the potential harms to the animals against the likely benefits of the research); Dominik Hajosi & Herwig Grimm, *Mission Impossible Accomplished? A European Cross-National Comparative Study on the Integration of the Harm-Benefit Analysis into Law and Policy Documents*, PLOS ONE, Feb. 2024, at 1, 2, 10.

⁸ The IACUC is responsible for evaluating the care, housing, treatment and welfare of animals, and also for the approval of research protocols.

⁹ Steven P. McCulloch, *Brexit and Animal Welfare Impact Assessment: Analysis of the Opportunities Brexit Presents for Animal Protection in the UK, EU, and Internationally*, MDPI J., Aug. 27, 2019, at 1, 3 (referencing prospective U.K. legislation that will be used to ensure animals are recognized as sentient beings); Animal Welfare (Sentience) Act 2022, c. 22 (UK).

¹⁰ Helen Proctor, *Animal Sentience: Where Are We and Where Are We Heading?*, 57 MDPI J. 628, 631 (2012).

definitions of cruelty, which indirectly refer to infliction of pain and distress, and differ from state to state.¹¹

This Article will discuss how animal sentience and emerging bioethical principles could be used to amend present laws and inform new policies.

II. WHY ANIMALS ARE STILL USED

In the United States and globally, governing bodies and the broad animal research community—including academia, pharmaceutical corporations, contract research organizations, biotechnology companies, and other entities—still agree that animals remain necessary for biomedical research to advance scientific knowledge, improve both human and animal health, develop new drugs, and ensure the safety of the public.¹²

As demonstrated by early research for a COVID-19 vaccine, there is a long history of successful discoveries that relied on the availability of animal models.¹³ Yet, the number of studies in which animals are legally required is small compared to the number of animal studies conducted in the US and internationally.¹⁴ In the United States, the 2021 FDA Modernization Act states that non-animal methods (i.e., alternatives) can be used to determine safety and efficacy of new treatments.¹⁵ Additionally, the amended Toxic Substance Control Act refers to the use of alternatives, which has led the Environmental Protection Agency to utilize new approach methodology (NAM) with the vision to completely replace testing on animals in toxicology settings.¹⁶ The

¹¹ Paige M. Tomaselli, *Detailed Discussion of International Comparative Animal Cruelty Laws*, MICH. ST. UNIV. COLL. OF L. (2003), <https://www.animallaw.info/article/detailed-discussion-international-comparative-animal-cruelty-laws> (accessed Jan. 28, 2024).

¹² Catherine E. Amiot & Brock Bastian, *Toward A Psychology of Human-Animal Relations*, 141 PSYCHOL. BULL. 6, 6, 22 (2015); S. Festing & R. Wilkinson, *The Ethics of Animal Research: Talking Point on The Use of Animals in Scientific Research*, 8 EMBO REPORTS 526, 526 (2007); N.H. Franco, *Animal Experiments in Biomedical Research: A Historical Perspective*, 3 ANIMALS 238, 262 (2013); E.H. Ormandy & C.A. Schuppli, *Public Attitudes Toward Animal Research: A Review*, 4 ANIMALS 391, 392 (2014); Daniel Stimson, *Education and Outreach Programs*, in MANAGEMENT OF ANIMAL CARE AND USE PROGRAMS IN RESEARCH, EDUCATION, AND TESTING 83 (RH Weichbrod et al. eds., 2nd ed. 2018).

¹³ César Muñoz-Fontela et al., *Animal Models for COVID-19*, 586 NATURE 509, 509, 511–14 (2020).

¹⁴ See, e.g., Gail A. Van Norman, *Drugs, Devices, and The FDA: Part 1: An Overview of Approval Processes for Drugs*, 1 JACC BASIC TO TRANSL. SCI. 170, 170, 172 (2016) (discussing the regulatory requirements for drug testing in the United States); see also Amy M. Avila et al., *An FDA/CDER Perspective on Nonclinical Testing Strategies: Classical Toxicology Approaches and New Approach Methodologies (NAMs)*, REG. TOX. & PHARM. July 2020, at 2 (2020) (explaining safety assessment requirements).

¹⁵ Jason J. Han, *FDA Modernization Act 2.0 Allows for Alternatives to Animal Testing*, 47 ARTIFICIAL ORGANS 449, 449 (2023).

¹⁶ EPA Releases Updated New Approach Methodologies (NAMs) Work Plan, ENV'T. PROT. AGENCY (Jan. 19, 2022), <https://www.epa.gov/sciencematters/epa-releases-updated-new-approach-methodologies-nams-work-plan> (accessed Feb. 12, 2024); Toxic Substances Control Act of 1976, 15 U.S.C. § 2603(h).

definition, acceptance, and success of NAMs remain inconsistent and evolving.¹⁷ Complicating the matter, regulations for vaccine production and release still require animal-based testing (i.e., batch testing) in spite of strong—even successful—efforts to reduce this need in the vaccine approval process.¹⁸ Despite these examples, it is important to recognize that the majority of animals are used in studies driven by science and precedent, not legal requirements. To affect broadly applicable change, a way forward is to center policy and law on sentience.

III. CHARACTERISTICS OF U.S. LAWS

Basic ethical principles that are clearly articulated and globally agreed upon drive both the design and review of biomedical research with human participants. For example, the 1946 Nuremberg Code, provided the foundation for other international guidelines, most notably the Declaration of Helsinki.¹⁹ The United States adopted its own national ethical principles in the Belmont Report following the revelation of the Tuskegee Syphilis Studies.²⁰ Despite important philosophical arguments and ethical considerations regarding the use of animals in scientific procedures (referenced and expanded upon in subsequent sections), an equivalent grounding of animal research in bioethical principles does not exist in the United States legal system.

The AWA's original purpose was to prevent the theft and subsequent sale to research laboratories of pet cats and dogs, and to regulate the humane care and use of laboratory animals.²¹ Following eight amendments, today the Act covers any live or dead warm-blooded animal determined by the United States Department of Agriculture (USDA) to be used for research, exhibition, or as a pet.²² The definition of “animal” under the AWA excludes three main categories: birds, mice, and rats bred for research; horses not used for research; and other farm animals

¹⁷ There are several definitions for NAMs: New approach methods, new alternative methods, non-animal methodology, newly adapted methods, etc. ADVISORY COMM. TO THE DIR. NAT'L INST. OF HEALTH, CATALYZING THE DEVELOPMENT AND USE OF NOVEL ALTERNATIVE METHODS TO ADVANCE BIOMEDICAL RESEARCH 7, 9, 10, 11 (2023).

¹⁸ See Jean-Francois Dierick et al., *The Consistency Approach for The Substitution of In Vivo Testing for The Quality Control of Established Vaccines*, OPEN RSCH. EUR. Dec. 2022, at 3, 5, <https://doi.org/10.12688/openreseurope.15077.2> (accessed Feb. 21, 2024) (discussing advocacy for reducing animal testing in vaccine production).

¹⁹ Evelyne Shuster, *Fifty Years Later: The Significance of The Nuremberg Code*, 337 NEW ENG. J. OF MED. 1436, 1436, 1439 (1997).

²⁰ Will Schupmann & Jonathan D. Moreno, *Belmont in Context*, 63 PERSPS. IN BIOLOGY & MED. 220, 230-33 (2020).

²¹ ELENI G. BICKELL, CONG. RSCH. SERV. R47179, THE ANIMAL WELFARE ACT: BACKGROUND AND SELECT ISSUES (2023).

²² *Id.*

used in the production of food and fiber.²³ Additionally, the AWA does not cover cold-blooded vertebrate animals or invertebrates.²⁴

In parallel, the Public Health Service Policy (PHS Policy) represents the rules followed by the National Institutes of Health (NIH) grantees (and their institutions), whose federally-funded research depends on the use of animals.²⁵ The PHS Policy covers all vertebrate animals²⁶ and incorporates the requirements of the *Guide for the Care and Use of Laboratory Animals* into the standards for research facilities operating with federal funds.²⁷ The most significant revision of the PHS Policy, since its first iteration in 1971, occurred in 1985 with the passage of the Health Research Extension Act,²⁸ which established the parameters and functions of the IACUC.²⁹ As one analysis of the two legal approaches to animal welfare observed, the AWA is a ‘top-down’ law written by Congress in response to public pressure, whereas the NIH guidelines grew from a set of self-regulatory standards written for laboratory animals that were later encoded as federal law.³⁰

Humans write laws that govern both human and animal welfare, thus those laws reflect both personal and societal human beliefs and choices. The exclusion or inclusion of animal species under the welfare protections of a law reflects the human needs of the times; for example, a human who considers their dog a family member will often object to scientists performing research on dogs. This emotional, financial, and political choice is based on the philosophical justification of using—including hurting and killing—animals to serve human needs.³¹

Although justifications for the choice of species, number of animals, treatment to be administered, and other legal requirements are all mandatory components of the animal research protocol reviewed by the responsible IACUC, United States laws do not defer to animal needs. That is, the animal is not specifically recognized, as is the case in the analogous U.K. law (the *Animal Scientific Procedures Act*).³² The Animal Scientific Procedures Act reflects the work of utilitarian

²³ *Id.*

²⁴ *AWA Standards for Birds*, 88 Fed. Reg. 10654 (Feb. 21, 2023) (to be codified at 9 C.F.R. pt. 1).

²⁵ U.S. DEP’T OF HEALTH & HUM. SERVS. & OFF. OF LAB. ANIMAL WELFARE NAT’L INST. OF HEALTH, NO. 15-8013, PUBLIC HEALTH SERVICE POLICY ON HUMANE CARE AND USE OF LABORATORY ANIMALS 7 (2015).

²⁶ *Id.* at 8.

²⁷ *Id.* at 9.

²⁸ *Id.* at Preface, 1–3.

²⁹ *Id.* at 8.

³⁰ L. CARBONE, WHAT ANIMALS WANT: EXPERTISE AND ADVOCACY IN ANIMAL WELFARE POLICY 23, 34–35 (Oxford University Press, Inc. 2004).

³¹ See M. Scully, DOMINION: THE POWER OF MAN, THE SUFFERING OF ANIMALS, AND THE CALL TO MERCY (St. Martin’s Press, 2002) (“Whenever we humans enter [the animals’] world... we enter as lords of the earth bearing strange powers of terror and mercy alike.”).

³² Animals (Scientific Procedures) Act 1986, c. 14 (U.K.).

philosopher Jeremy Bentham, who famously asked if animals can suffer.³³ As a result, the U.K. Act specifically defines and addresses suffering and the Act was later amended to also recognize sentience in animals, since they can suffer and feel pain.³⁴ In the United States, the closest approximation to animal sentience is an indirect reference in Principle IV of the *U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research and Training*, which states that “[u]nless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in other animals.”³⁵ The Principles were written in 1985 and have not been amended since, despite numerous advances in neuroscience, behavioral research, and evolutionary biology that have revealed the mental status (well-being or conversely, anxiety, stress, and anguish) of animals.³⁶ Our improved understanding of animals’ capacity to be aware is not captured in U.S. laws, which are the current means of protection of animal welfare against cruelty. A 2011 report on chimpanzees as models for biomedical and behavioral research demonstrates the potential for change.³⁷ Guided by ethical principles to review the continued need and use of chimpanzees, a committee of experts determined that “most current use of chimpanzees for biomedical research is unnecessary....except potentially for [2 specific lines of inquiry].”³⁸ To the authors’ knowledge, this remains the only government-funded instance in the United States to evaluate the appropriateness of the continued use of a specific animal species for biomedical research purposes.

IV. SETTING THE STAGE

The perception of human dominance over animals is ancient and found in many cultures and religions.³⁹ It is, therefore, easy to understand why most humans today believe that humans are superior

³³ FARM ANIMAL WELFARE COMM., EVIDENCE AND THE WELFARE OF FARMED ANIMALS: PART 1: THE EVIDENCE BASE, at 8, 17 (June 2014).

³⁴ Animals (Scientific Procedures) Act 1986, c. 14, § 2; *see also* Animal Welfare Act 2006, c. 45, § 4 (U.K.) (explaining that in England and Wales it is an offense to cause unnecessary suffering to any animal, as defined under the Act).

³⁵ COMM. FOR THE UPDATE OF THE GUIDE FOR THE CARE AND USE OF LAB. ANIMALS, NAT’L RSCH. COUNCIL, GUIDE FOR THE CARE AND USE OF LABORATORY ANIMALS 200 (The National Academies Press 8th ed. 2011).

³⁶ U.S. Gov’t Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research and Training, 50 Fed. Reg. 20864 (May 20, 1985).

³⁷ INST. OF MED. AND NAT’L RSCH. COUNCIL OF THE NAT’L ACADS., CHIMPANZEES IN BIOMEDICAL AND BEHAVIORAL RESEARCH: ASSESSING THE NECESSITY (Bruce M. Altevogt et al. eds., 2011).

³⁸ *Id.* at 2–5.

³⁹ E. Szűcs et al., *Animal Welfare in Different Human Cultures, Traditions and Religious Faiths*, 25 *ASIAN-AUSTRALASIAN J. OF ANIMAL SCIS.* 1499, 1500 (2012); INGVLID SÆLID GILHUS, *ANIMALS, GODS AND HUMANS, CHANGING ATTITUDES TO ANIMALS IN GREEK, ROMAN AND EARLY CHRISTIAN IDEAS* 44 (Routledge ed., 2006).

animals. Peter Singer and others have coined the term *speciesism* to describe humans purposefully elevating their own species, even if they share characteristics with nonhuman animals.⁴⁰

In earlier centuries, animals were considered machine-like,⁴¹ or without moral status—existing solely for the benefit of humans.⁴² This Article posits that this is no longer a valid belief. It is widely known that many members of the animal kingdom are sentient.⁴³ Despite the common use of the terms ‘humans’ and ‘animals,’ the term ‘nonhuman animal’ is gaining popularity as a way to denote our commonality.⁴⁴ All nonhuman animals addressed in this Article are considered sentient, and express reactions to pain and harm.⁴⁵ In some species, expressions of pleasure are also documented—another component of sentience.⁴⁶

This Article focuses on sentience, but it is important to define and describe two other terms: *cognition* and *self-awareness*. (1) *Cognition* is the ability to learn and process clues from the environment and informs coping, learning and survival strategies.⁴⁷ For the purposes of this Article, most animals used in research are considered to possess both sentience and cognition, which are two separate and distinct capabilities.

⁴⁰ See Peter Singer, *Speciesism and Moral Status*, 40 METAPHILOSOPHY 567, 568, 572-73 (2009) (discussing the view that humans are superior over those who are not members of the same species and cognitive studies that show overlap between humans and non-human species); see also Oscar Horta & Frauke Albersmeier, *Defining Speciesism*, PHIL. COMPASS, 20 January 2020, at 1, 4, <https://doi.org/10.1111/phc3.12708> (accessed Jan. 28, 2024) (defining speciesism in different ways, including “the unjustified comparatively worse consideration or treatment of those who are not classified as belonging to a certain species (or group of species) whose members are favored, or who are classified as belonging to a certain species (or group of species) whose members are disregarded.”).

⁴¹ Evan Thomas, *Descartes on the Animal Within, and the Animals Without*, 50 CANADIAN J. OF PHIL. 999, 999–1000 (2020).

⁴² G Tulloch, *Animal Ethics: The Capabilities Approach*, 20 ANIMAL WELFARE 3, 5 (2011); Anna Sofia Salonen, *Dominion, Stewardship and Reconciliation in the Accounts of Ordinary People Eating Animals*, 13 RELIGIONS 669, 669 (2019) <http://dx.doi.org/10.3390/rel10120669> (accessed Jan. 28, 2024).

⁴³ See *PETA to NIH: Animals Feel Pain and Joy- Stop Testing on Them*, PEOPLE FOR THE ETHICAL TREATMENT OF ANIMALS <https://headlines.peta.org/animal-sentience/> (accessed Feb. 19, 2024) (providing a list of countries that have laws explicitly recognizing animal sentience).

⁴⁴ See, e.g., Alana Van Gundy, *The Archaic Attempts to Protect Nonhuman Suffering: Suggestions for the Advancement of Legislative Regulation of Online Depictions of Animal Cruelty*, 26 ANIMAL L. 139, 155 (2020) (providing an example of a law review article that uses the denomination of “nonhuman animals.”).

⁴⁵ Heather Browning & Jonathan Birch, *Animal Sentience*, PHIL. COMPASS, March 2022, at 1–2, <https://doi.org/10.1111/phc3.12822> (accessed Jan. 28, 2024); C.E. Blattner, *The Recognition of Animal Sentience by the Law*, 9 J. OF ANIMAL ETHICS 121, 121 (2019).

⁴⁶ Blattner, *supra* note 45, at 125.

⁴⁷ Andrew Sih & Marco Del Giudice, *Linking Behavioural Syndromes and Cognition: A Behavioural Ecology Perspective*, 367 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y B: BIOLOGICAL SCI. 2762, 2762 (2012).

(2) The second term is *self-awareness*.⁴⁸ All members of *Homo sapiens* are self-aware, even if specific individuals suffer from illnesses that prevent the expression of self-awareness. Self-awareness in humans is understood as the ability to recognize oneself as different from others in photographs, mirrors, and vocal tones. Behavioral experiments have also proven self-awareness in select other species, such as great apes, orcas, and dolphins.⁴⁹ Differences between actions stemming from sentience, cognition, and self-awareness are easily demonstrated by, for example, observing a pet dog. Buzz the dog⁵⁰ clearly demonstrates a pain response when someone accidentally steps on his paw, and joy anytime anyone comes to the door. He is sentient. He is a cognitive being. He has used these capabilities to do a number of actions requiring cognition and sentience: he figured out the best routes in his fenced yard for squirrel and chipmunk targeting; he can tell what time the neighbor's dog is out; he knows which are his self-selected elimination spots and which of his humans is the weak link for his treats. However, unless windows and other reflecting surfaces are covered every night, he will bark at the 'strange dog' staring back at him. Buzz, for all his wonderful traits, is not self-aware, though he is sentient and cognitive.

Based on sentience, cognition, or self-awareness (or a combination of the three), do Buzz and other animals possess moral status, moral consideration, or moral standing?⁵¹ Before examining this question, a short summary of two normative ethical frameworks is necessary. One is deontology; the second is utilitarianism.

In Immanuel Kant's deontological principles, judgement on good or bad depends not on the outcome, but rather the intention of the action.⁵² Kant's acclaimed quote asserting his philosophy on respect and duty, is "[a]ct so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only."⁵³ Kantian theory states that humans do not have a direct duty to animals but rather an indirect one.⁵⁴ While animals have no intrinsic standing, per

⁴⁸ Masanori Kohda, et. al., *If a Fish Can Pass the Mark Test, What are the Implications for Consciousness and Self-Awareness Testing in Animals?*, PLoS BIOLOGY, Feb. 2019, at 2 <https://doi.org/10.1111/phc3.12822> (accessed Feb. 17, 2024).

⁴⁹ *List of Animals That Have Passed the Mirror Test*, ANIMAL COGNITION (Apr. 15, 2015), <https://www.animalcognition.org/2015/04/15/list-of-animals-that-have-passed-the-mirror-test/> (accessed Jan. 5, 2023).

⁵⁰ One of the authors has a male standard poodle who gets a buzz cut and is, appropriately, named Buzz Lightyear.

⁵¹ The terms moral status, moral consideration, and moral standing are used interchangeably in this Article.

⁵² Erik Hanson, *Immanuel Kant: Radical Evil*, INTERNET ENCYC. OF PHIL., <https://iep.utm.edu/rad-evil/> (accessed Feb. 21, 2024); IMMANUEL KANT, *GROUNDING FOR THE METAPHYSICS FOR MORALS* 36 (Jonathan Bennet ed. 2017).

⁵³ R.Y. Chappell, *The Mere Means Objection*, UTILITARIANISM.NET, (2023), <https://utilitarianism.net/objections-to-utilitarianism/mere-means/> (accessed Feb. 17, 2024).

⁵⁴ Samuel Camenzind, *Kantian Ethics and the Animal Turn. On the Contemporary Defense of Kant's Indirect Duty View*, 11 ANIMALS (BASEL) 512, 512 (2021).

Kant, humans would be morally harmed, because they would not show respect or exercise their duty, if they did not treat animals humanely.⁵⁵ A more recent proponent of deontological principles for animals is Tom Regan, whose seminal work *The Case for Animal Rights*⁵⁶ applied Kantian theory to nonhuman animals.⁵⁷ While Regan's work is widely read, his premise that animals—like humans—have inherent rights is not put into practice at most research institutions. Utilitarian principles form the most common basis for discussions in IACUC meetings, as it is very difficult to discuss the ethical merits of using animals in research in deontological terms within the present ethical frameworks of the 3Rs and HBA.⁵⁸

In the animal research field, the utilitarianism framework—under which actions are justified if they produce the greatest good for the greatest number of people—guides most debates, decisions, and actions of an IACUC.⁵⁹ While Peter Singer is the most well-known contemporary proponent of utilitarianism, it was the 1789 essay penned by Jeremy Bentham that laid the groundwork for using utilitarian logic in the human relationship to laboratory animals.⁶⁰ Bentham stated that humans have a direct duty to animals due to the animals' intrinsic value.⁶¹ The key quote is, “[t]he question is not, Can they *reason*? Nor, Can they *talk*? But, Can they *suffer*?”⁶² Neither Kant nor Bentham directly addressed the moral status of animals, but Peter Singer and others have argued that animals have moral status or that sentient animals should be considered equal to humans.⁶³

There are three main schools of thought regarding the moral consideration of animals.⁶⁴ Animals may have no moral consideration, equal consideration, or unequal consideration.⁶⁵ The weight of moral status is proportional to the level of interest exhibited by an animal

⁵⁵ *Id.* (stating that Kant's ethics could accommodate animals' moral standing).

⁵⁶ TOM REGAN, *THE CASE FOR ANIMAL RIGHTS*, 179 (WBI Studies repository ed. 1986).

⁵⁷ TOM REGAN, *DEFENDING ANIMAL RIGHTS* 13 (University of Illinois Press 2001).

⁵⁸ Margaret S. Landi et. al., *Consideration and Checkboxes: Incorporating Ethics and Science Into the 3Rs*, 54 J. OF THE AM. ASS'N FOR LAB'Y ANIMAL SCI., 224, 227–228 (2015) (explaining that the IACUC uses a checklist approach to research evaluations, the 3Rs, and that approach lends itself to utilitarianism, but not deontological principles, or the view that an action is wrong regardless of its incidental positive effects for others).

⁵⁹ Federico Zuolo, *Misadventures of Sentience: Animals and the Basis of Equality*, 9 ANIMALS, at 6–7 (2019) doi:10.3390/ani9121044 (accessed Feb. 17, 2024).

⁶⁰ Johannes Kniess, *Bentham on Animal Welfare*, 27 BRIT. J. FOR THE HIST. OF PHIL. 565, 566–567 (2019).

⁶¹ Jeremy Bentham, *An Introduction to the Principles of Morals and Legislation*, 143–144 (Jonathan Bennet ed., 2017).

⁶² Emilie Dardenne, *From Jeremy Bentham to Peter Singer*, 1,5 REVUE D'ÉTUDES BENTHAMIANNES. 2–3 (2010).

⁶³ Singer, *supra* note 40, at 573.

⁶⁴ Oscar Horta, *Why the Concept of Moral Status Should be Abandoned*, 20 ETHIC THEORY MORAL PRAC. 899, 902–904 (2017).

⁶⁵ *Id.*

and recognized as such by humans.⁶⁶ The clearest examples may be suffering and grief. There are numerous accounts of demonstrated grief and suffering throughout the human and nonhuman animal species, caused by the death of an offspring, the loss of an elder, or separation from a social group.⁶⁷ However, only humans display grief and suffering on the anniversary of the death of an offspring, the first day of what would have been their kindergarten graduation, their elder's milestone birthday, or the reminder of a loss, e.g., the smell of the ocean or a special song.

The type of moral status that humans assign to animals is divided into three main groups.⁶⁸ The first, 'no consideration,' means that animals are not sentient and therefore we need not consider their interests, because they do not suffer.⁶⁹ With no consideration, a sentient being is denied moral standing.⁷⁰ While under this condition humans have direct or indirect duties to nonhuman animals, this status does not apply to animals in research, who are sentient.⁷¹

The second type of moral standing is 'equal consideration,' meaning the animals' interests deserve the same amount of moral weight as the interests of humans.⁷² Most philosophers and ethicists support this standing, as it implies that human and nonhuman animals may have shared interests, e.g., avoidance of pain.⁷³

The following thought experiment helps demonstrate aspects of equal consideration. Five healthy humans and one big dog are on a lifeboat, which can only support five bodies. Like humans, dogs are known to have interests, such as not suffering. However, the interests of the five humans are broader than those of the dog by the species-specific differences. Even with equal consideration, over-boarding the dog would

⁶⁶ Agnieszka Jaworska & Julie Tannenbaum, *The Grounds of Moral Status*, THE STAN. ENCYC. OF PHIL., (Spring 2023) <https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=grounds-moral-status> (accessed Feb. 4, 2024).

⁶⁷ Doro Biro Et Al., *Chimpanzee Mothers at Bossou, Guinea Carry the Mummified Remains of Their Dead Infants*, 20 CURRENT BIOLOGY, 351 (2010); Teja Brook Pribac, *Animal Grief*, 2 ANIMAL STUD. J. 68 (2013); Barbara J. King, *Animal Mourning*, ANIMAL SENTIENCE, 2016, at 2 <https://www.wellbeingintlstudiesrepository.org/animalsent/vol1/iss4/1/> (accessed Feb. 21, 2024).

⁶⁸ *Animals and Ethics*, INTERNET ENCYC. OF PHIL., <https://iep.utm.edu/animals-and-ethics/#SH1d> (accessed Feb. 9, 2024) ("Philosophical thinking on the moral standing of animals is diverse and can be generally grouped into three general categories: Indirect theories, direct but unequal theories, and moral equality theories." This article equates indirect theories to "no consideration," direct but unequal theories to "unequal consideration," and moral equality theories to "equal consideration.").

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ Indirect duty is one whose exercise may result in harm to a human; for example, financial, if an animal under a human's stewardship is harmed.

⁷² Zuolo, *supra* note 59, at 6.

⁷³ See *What Is the Principle of the Equal Consideration of Interests*, ETHICAL GLOBE, <https://www.ethicalglobe.com/blog/what-is-the-principle-of-the-equal-consideration-of-interests> (accessed Feb. 21, 2024).

be acceptable. In this example, while all six beings have an interest in survival, the death of the dog has less impact if seen through the lens of utilitarianism, i.e., greater effect for the greater good. Although the dog's death is a very unpleasant thought, it helps clarify equal consideration under differing interests. There is much support for equal consideration, and in many cases it may be the appropriate framework for human and nonhuman animals. Humans are ultimately driven first by emotions, rather than logic, and for many people working in animal research, there is an unequal consideration (see the following) between human and nonhuman animals.⁷⁴

The third and final type of moral standing is unequal consideration, meaning that nonhuman animal interests, while deserving some consideration, are not equal with human interests.⁷⁵ Unequal consideration seems attractive to many and is often understood as a sliding scale tied to the quality of cognition.⁷⁶ To better understand unequal consideration, it must be recognized that the animal subjects of this Article are not only sentient but are capable of cognition. Animals demonstrate cognition on a daily basis. As described earlier, in its simplest terms cognition requires a being to process information that in turn informs their behavior to fulfill their interests; e.g., finding food or seeking shelter. In the sliding scale view, an animal with higher cognition would have higher moral considerability, and conversely those with lesser cognition are accorded lesser moral status.⁷⁷ The sliding scale is a pragmatic solution for a complicated concept. However, it is also the least theoretically developed viewpoint in philosophical animal ethics.⁷⁸ For many who work with animals on a daily basis, the application of the sliding scale may seem logical. Under this framework a nonhuman primate, having more cognitive capacity than a rat, has a higher moral status. Extremes often provide clarity by explicitly illustrating perceived difference, but—in terms of cognition—most animals land somewhere in the middle and thus many decisions regarding the ethical treatment of animals reflect the difficulty in defining their capacity according to a cognitive scale. For example, many people would classify a dog as having higher moral status than a pig, but it is hard to differentiate between these two species based on sentience and cognition alone.

This Article posits that all sentient beings have moral status; there is no premise on which to accept no moral consideration for animals. Equal consideration is an accurate description of nonhuman

⁷⁴ See e.g., Hannah Mamzer et al., *Negative Psychological Aspects of Working With Animals in Research*, PEER J., Apr. 2021, <https://doi.org/10.7717/peerj.11035> (accessed Feb. 9, 2024) (finding a link between working in animal testing and increased feelings of remorse, helplessness, and emotional tension).

⁷⁵ *Id.* at 192.

⁷⁶ *Id.* at 184, 192.

⁷⁷ *Id.* at 192.

⁷⁸ *Id.* at 193.

animal status, but for many, unequal consideration could be more readily accepted. Accepting unequal consideration over equal consideration may seem to some an untenable decision; however, it is important to remember that under both frameworks, animals are sentient and have moral status.

V. RECOGNITION OF SOCIETY'S INTERESTS AND INTRODUCING NEW PRINCIPLES

As previously stated, the basic definition of speciesism is the exploitation by humans of other species for our own benefit. There are some nonhuman species that also exhibit exploitive behavior, e.g. cats that play with a mouse before a kill.⁷⁹ Society's relationships with animals are changing. This development may be most obvious for veterinarians whose clients more and more frequently go into debt to pay for treatments.⁸⁰ While veterinary costs are a contributing factor, the key driver is the increasingly stronger bond between people and their pets.⁸¹

The public has shown increased interest in not just what is done to an animal and how their welfare is protected, but in why protection is needed and if the animal's moral status is considered.⁸² Customarily, the response to a question on why animals are needed or being used is based on scientific knowledge and facts—animals serve as comparative models of physiology, behavior, or diseases, such as cancer and diabetes; in addition, the short life span of rodents is important in having accelerated insight into studies required for toxicology.⁸³

Such similarities are not enough to guarantee the reproducibility or successful translation of animal data into human clinical trials.⁸⁴ Yet, lack of translatability in some animal models does not invalidate all animal studies. This Article argues the need for improved study

⁷⁹ See Delgado, M., & Hecht, J. (2019). *A Review of the Development and Functions of Cat Play, With Future Research Considerations*, APPLIED ANIMAL BEHAV. SCI., May 2019, at 7–8, <https://doi.org/10.1016/j.applanim.2019.03.004> (accessed Feb. 20, 2024) (examining predatory play behavior in cats).

⁸⁰ Heidi Gollub & Jennifer Lobb, *91% of Dog Owners Have Experienced Financial Stress Over the Cost of Pet Ownership*, USA TODAY (Nov. 9, 2023), <https://www.usatoday.com/money/blueprint/pet-insurance/cost-of-pet-ownership/> (accessed Feb. 17, 2024).

⁸¹ *New Research Confirms the Strong Bond Between People and Pets is a Global Phenomenon, 95% Worldwide Say Pets Are Family*, HUM. ANIMAL BOND RSCH. INST. (Jan. 16, 2022), <https://habri.org/pressroom/20220116> (accessed Feb. 12, 2024).

⁸² Kiani et al., *Ethical Considerations Regarding Animal Experimentation*, 63 J. PREVENTATIVE MED. HYGIENE E255, E256 (2022).

⁸³ Françoise Barré-Sinoussi & Xavier Montagutelli, *Animal Models Are Essential to Biological Research: Issues and Perspectives*, 1 FUTURE SCI. OA 1, 2 (Nov. 2015); *Why Animal Research?*, STAN. UNIV., <https://med.stanford.edu/animalresearch/why-animal-research.html> (accessed Jan. 5, 2024).

⁸⁴ Paul McGonigle & Bruce Ruggeri, *Animal Models of Human Disease: Challenges in Enabling Translation*, 87 BIOCHEMICAL PHARMACOLOGY 162, 164 (Aug. 14, 2013); Christopher P. Austin, *Opportunities and Challenges in Translational Science*, 14 CLINICAL & TRANSLATIONAL SCI. 1629, 1635 (May 13, 2021).

design and methodology. It is also stating that studies should be designed based on consideration for the sentient beings' moral status.

As noted earlier, most United States laws and regulations were generated to protect pets from theft and to protect animals—not just pets—from cruelty.⁸⁵ Despite the fact that animal welfare is not defined either in the AWA or PHS Policy, there is now strong motivation in recognizing the “telos” of the animals within these regulations.⁸⁶ Following Aristotelian manner, telos is defined from the perspective of the needs and interest of an animals and not just from the human viewpoint.⁸⁷ For example, wild and free roaming pigs exhibit the ability to act as a pig in ways that are often absent in commercial pig farms.⁸⁸ Legal recognition of sentience would be inexorably tied to telos and be a step toward laws based on ethics, and not just welfare.

In their 2019 seminal book, Beauchamp and DeGrazia propose three claims upon which both the scientific and lay communities could converge to make changes in animal laws and policies.⁸⁹ Beauchamp and DeGrazia's first claim is that sentient animals have moral status, to which there is more and more agreement.⁹⁰ Their second claim is that any justification for harming beings unable to consent to being harmed must have substantial social benefit.⁹¹ The term ‘substantial’ can be subjective and could be difficult to apply in basic scientific research, but the inclusion of society's desire is relevant. Their third claim argues that “any permissible harming of animal subjects is limited by the considerations of animal welfare.”⁹² In other words, studies that add to scientific knowledge and understanding must be curtailed—if needed—based on animal welfare considerations. These three claims are encompassed in the principles of social benefit and the principles of animal welfare, all of which are notable in their formal recognition of the importance of public concern.⁹³

Under Beauchamp and DeGrazia's set of core principles of social benefit, the first is the *principle of no alternative method*, which requires proof that the only way to proceed with an experiment is with animal trials.⁹⁴ While this principle resembles the *replacement* R of the 3Rs,⁹⁵ it requires a greater commitment from the researchers to assert

⁸⁵ Unti, *supra* note 3, at 5–6.

⁸⁶ Animal Welfare Act of 1966, 7 U.S.C. § 2132; PHS Policy on Humane Care and Use of Laboratory Animals, *supra* note 25, at 8; Michael Hauskeller, *Telos: The Revival of an Aristotelian Concept in Present Day Ethics*, 48 INQUIRY 62, 64 (Aug. 21, 2006).

⁸⁷ Hauskeller, *supra* note 86, at 64.

⁸⁸ *Id.* at 63.

⁸⁹ David DeGrazia & Tom L. Beauchamp, *Beyond the 3 Rs to a More Comprehensive Framework of Principles for Animal Research Ethics*, 60 ILAR J. 308, 311 (2019).

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ *Id.*

that novel alternative methods, non-animal methods, and even well-constructed human trials, are not appropriate for the scientific question under study.⁹⁶ The second is the *principle of expected net benefit*, which moves the discussion from the classic harm/benefit analysis to a risk/benefit analysis focused on predicted risks and benefits for humans.⁹⁷ Strict adherence to this principle could increase the translatability and rigor of studies tied to the discovery of new scientific understanding and treatments.⁹⁸ The third is the *principle of sufficient value to justify harm*.⁹⁹ By accepting the moral status of animals, even on a sliding scale, humans do have an obligation to inquire—and prove—that the study is of sufficient value to the public to justify harming animals. Since by default all animal studies are conducted on non-consenting beings, society is asking to ensure the value of the study before implementation.¹⁰⁰

The second core set of three principles from the aforementioned book is focused on animal welfare. The first is the *principle of no unnecessary harm*, which prohibits the compromise of animal welfare except where it is necessary and morally justified for research.¹⁰¹ This principle extends the common harm/benefit analysis to situations beyond the research study that are often not considered.¹⁰² Transportation of animals from a supplier to an institution—depending on time, distance, temperature, and humidity—can cause harm.¹⁰³ A shorter transportation route from a rodent vendor to a specific institution is often more expensive, and therefore the longer route may be selected.¹⁰⁴ This longer

⁹⁶ See Jason E. Ekert, et al., *Recommended Guidelines for Developing, Qualifying, and Implementing Complex In Vitro Models (CIVMs) for Drug Discovery*, 25 SLAS DISCOVERY 1174, 1176 (2020) (“[T]here are opportunities throughout the drug discovery process to incorporate more translationally predictive cellular models, or CIVMs, to both reduce animal use aligned to [the] 3Rs commitment (replacement, reduction, and refinement) and provide data that better translate to the clinic, which ultimately results in better medicines for patients.”).

⁹⁷ DeGrazia & Beauchamp, *supra* note 89, at 311.

⁹⁸ See Catherine Shaffer, *Long-Awaited NIH Working Group Report on Animal Research Rigor: ‘A Good Start’*, 50 LAB ANIMAL 226, 226-27 (2021) (arguing animal research is likely to remain because of the impact it has had on “medical mysteries throughout history[.]” Thus, understanding these future medicinal benefits must be taken into account when thinking about expected net benefits of nonhuman animal research.).

⁹⁹ DeGrazia & Beauchamp, *supra* note 89, at 312.

¹⁰⁰ See *id.* (“[D]ecisionmakers tasked with assessing how to apply the third principle must consider whether the study’s anticipated net benefit is *sufficiently valuable or large* to justify anticipated harms.”).

¹⁰¹ DeGrazia & Beauchamp *supra* note 89, at 312.

¹⁰² *Id.*

¹⁰³ NAT’L RSCH. COUNCIL (US) COMM. ON GUIDELINES FOR THE HUMANE TRANSP. OF LAB’Y ANIMALS, GOOD PRACTICES IN THE TRANSPORTATION OF RESEARCH ANIMALS 1-2, 17 (National Academies eds., 2006).

¹⁰⁴ See, e.g. NAT’L ACADS. OF SCIS., ENG’G, AND MED., TRANSPORTATION OF LABORATORY ANIMALS: PROCEEDINGS OF A WORKSHOP 4 (Washington, DC: The National Academies Press 2017) (discussing the increased costs associated with ground transportation of laboratory animals in comparison to air transportation).

transportation route can result in unnecessary animal deaths.¹⁰⁵ The second is *the principle of basic needs*. A recent and egregious example of where basic needs were unmet is the alleged cruelty and mishandling of dogs at a commercial vendor.¹⁰⁶ The last, *the principle of upper limits to harm*, asserts that a study should not be approved if animals will predictably “endure severe, long-lasting suffering,” even if the study exhibits considerable potential for social benefit.¹⁰⁷ Though this may read as straightforward, it is often difficult to predict what type of harm to expect in basic research.¹⁰⁸

VI. CONCLUSION: WHAT COULD BE NEXT?

The goal of this Article is to summarize the U.S. legal landscape regarding the care and use of laboratory animals,¹⁰⁹ outline what bioethical principles are of import, and—most significantly—assert that the key for future debates and discussions lies in recognizing and incorporating animal sentience in regulations and policies, possibly similar to how sentience has been successfully turned into law in the United Kingdom and European Union.¹¹⁰

However, if sentience is legally conferred on most animals, new and updated laws—including the AWA—would need to state acceptance of moral status. This Article firmly takes the stance that the incorporation of sentience into law is an incredibly important first step. It is known that the ongoing discussions in many institutions on the ethics of animal experimentation are siloed, often confined within IACUC deliberations, leading to a lack of completeness and reduced learnings on study design and implementation.¹¹¹ Furthermore, the current U.S. legislation is fragmented and primarily reactive.¹¹² Global developments in animal welfare and science have helped advance modern welfare laws

¹⁰⁵ WILLIAM J. WHITE ET AL., *THE UFAW HANDBOOK ON THE CARE AND MANAGEMENT OF LABORATORY AND OTHER RESEARCH ANIMALS* 170 (Robert Hubrecht et al. eds., 8th ed. 2010).

¹⁰⁶ Chuck Johnston, *4,000 Beagles Will Be Rescued From a Virginia Breeding Facility*, CNN (July 18, 2022), <https://www.cnn.com/2022/07/12/us/beagles-virginia-facility-rescue/index.html> (accessed Feb. 3, 2024).

¹⁰⁷ DeGrazia & Beauchamp *supra* note 89, at 313.

¹⁰⁸ Melanie L. Graham & Mark J. Prescott, *The Multifactorial Role of the 3Rs in Shifting the Harm-Benefit Analysis in Animal Models of Disease*, 759 EUR. J. OF PHARM., 19, 21 (2015).

¹⁰⁹ See discussion *supra* Part III (describing the current legal requirements for care and use of laboratory animals in the United States).

¹¹⁰ Blattner, *supra* note 45, at 122–24.

¹¹¹ See discussion *supra* Part III (explaining the legal requirements for evaluating proposed animal experiments).

¹¹² World Animal Protection, *Animal Protection Index (API) 2020: United States of America: Ranking D 8* (2020).

in other countries to address acts of omission, promote animal welfare, prevent cruelty against animals, and minimize their suffering.¹¹³

With legal recognition of sentience, the bioethical principles relevant to the use of animals in research will become part of the ethical discussion. Currently, the primary goal of the IACUC is to represent “society’s concerns regarding the welfare of animal subjects.”¹¹⁴ This is the change needed, to be about the *telos* of the animal and not just their welfare.

For the animals and society, the next step is for the legal community—in partnership with scientists, ethicists, and community members—to take action to ensure that nonhuman animal sentience becomes part of the Animal Welfare Act and the PHS Policy on Humane Care and Use of Laboratory Animals. The burden of incorporating societal concerns and recognition of sentience in animals into law is recognized, but the benefit should lessen the weight of change over time.

¹¹³ JANICE COX & SABINE LENNKH, MODEL ANIMAL WELFARE ACT: A COMPREHENSIVE FRAMEWORK LAW 17 (2016).

¹¹⁴ 7 U.S.C. § 2143(b)(1).