

ANIMALS IN COST-BENEFIT ANALYSIS

ANDREW STAWASZ*

ABSTRACT

Federal agencies' cost-benefit analyses do not capture nonhuman animals' ("animals'") interests. This omission matters. Cost-benefit analysis drives many regulatory decisions that substantially affect many billions of animals. That omission creates a regulatory blind spot that is untenable as a matter of morality and of policy.

This Article advances two claims related to valuing animals in cost-benefit analyses. The Weak Claim argues that agencies typically may do so. No legal prohibitions usually exist, and such valuation is within agencies' legitimate discretion. The Strong Claim argues that agencies often must do so if a policy would substantially affect animals. Cost-benefit analysis is concerned with improving welfare, and no argument for entirely omitting animals' welfare holds water.

Agencies have several options to implement this vision. These options include, most preferably, human-derived valuations (albeit in limited circumstances), interspecies comparisons, direct estimates of animals' preferences, and, at a minimum, breakeven analysis. Agencies could deal with uncertainty by conducting sensitivity analyses or combining methods. For any method, agencies should consider what happens when a policy would save animals from some bad outcomes and what form a mandate to value animals should take.

*Valuing animals could have mattered for many cost-benefit analyses, including those for pet-food safety regulations and a rear backup camera mandate. As a sort of "proof of concept," this Article shows that even a simple breakeven analysis from affected animals' perspective paints even the thoroughly investigated policy decision at issue in *Entergy Corp. v. Riverkeeper, Inc.* in an informative new light.*

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I. INTRODUCTION

The administrative state’s influence over nonhuman animals (“animals”) is enormous. Take, for example, a famous case in the environmental- and administrative-law canons, *Entergy Corp. v. Riverkeeper, Inc.*¹ This case describes how power plants rely on sucking in water from nearby sources to cool their facilities.² So-called cooling water intake structures (“CWISs”) can have heavy impacts on surrounding waters, including on the aquatic animals living in them. The Supreme Court describes what happens to animals living near CWISs as “the squashing against intake screens (elegantly called ‘impingement’) or suction into the cooling system (‘entrainment’) of aquatic organisms that live in the affected water sources.”³ The Environmental Protection Agency (“EPA”) elaborates:

Impingement occurs when fish are trapped against intake screens by the velocity of the intake flow. Organisms may die or be injured as a result of:

- starvation and exhaustion,
- asphyxiation when velocity forces prevent proper gill movement,
- abrasion by screen wash spray,
- asphyxiation due to removal from water for prolonged periods, and
- removal from the system by means other than returning them to their natural environment.

Small organisms are entrained when they pass through a plant’s condenser cooling system. Injury and death can result from the following:

- physical impacts from pump and condenser tubing,
- pressure changes caused by diversion of cooling

¹ 556 U.S. 208 (2009).

² *See id.* at 212–13.

³ *Id.* at 213.

water,

- thermal shock experienced in condenser and discharge tunnels, and
- chemical toxemia induced by the addition of anti-fouling agents such as chlorine.⁴

When it was considering policies related to CWISs, the EPA estimated that these structures kill 3.4 *billion* age-one-equivalent fish annually in the United States.⁵ For a sense of scale, that represents about 3.8 deaths for every single owned and stray dog on earth.⁶ The proposed policy at issue in *Entergy* was projected to prevent an estimated 1.4 billion of these “age-one equivalent [fish] losses,”⁷ and an alternative policy that the EPA rejected for cost reasons would have saved even more.⁸

These striking numbers suggest that a massive amount was at stake for the fish community. Yet perhaps equally striking is that the EPA’s quantitative analysis failed to include these animals’ interests. The analysis captured only the so-called “use” benefits stemming from saved fish—that is, fishes’ economic value to humans for sport, food, and other such uses.⁹ Such a value applies to only 1.8% of the fish that would be saved.¹⁰ Nothing else entered the EPA’s main benefits calculation for any of the potentially saved fish—neither for that 1.8% nor for the remaining (totally unvalued) 98.2%.¹¹

⁴ ENV’T PROT. AGENCY, ECONOMIC AND BENEFITS ANALYSIS FOR THE FINAL SECTION 316(B) PHASE II EXISTING FACILITIES RULE, at A2-7 (2004).

⁵ *Id.* at C2-1. The “age one equivalent” measure express losses “as an equivalent number of individuals at some other life stage. The method provides a convenient means of converting losses of fish eggs and larvae into units of individual fish and provides a standard metric for comparing losses among species, years, and regions.” *Id.* at C2-1 n.1. For ease of discussion, this Article drops the “age-one-equivalent” modifier from now on, but references to “fish” in the *Entergy* context should be understood as “age-one-equivalent fish.”

⁶ An estimated 900 million dogs live worldwide. Sundra Chelsea Atitwa, *How Many Dogs Are There in the World?*, WORLDATLAS (Jan. 31, 2018), <https://www.worldatlas.com/articles/how-many-dogs-are-there-in-the-world.html>.

Admittedly, this comparison assumes that the number of *age-one-equivalent* fish is comparable to the number of dogs *with no age adjustment*. While that assumption may be unwarranted in more rigorous calculations, it is useful to enable comparisons like this one that merely illustrate these numbers’ overall scale.

⁷ ENV’T PROT. AGENCY, *supra* note 4, at C3-1.

⁸ See *Entergy*, 556 U.S. at 216 (noting that the more expensive alternative policy “could reduce impingement and entrainment mortality by up to 98 percent,” whereas the EPA estimated that the policy it selected would result in “80 to 95 percent impingement reduction” at regulated facilities (citing 69 Fed. Reg. 41,576, 41,601 (July 9, 2004))).

⁹ ENV’T PROT. AGENCY, *supra* note 4, at C3-2.

¹⁰ *Id.*

¹¹ *Id.*

To aid in assessing what was at stake for these billions of fish, note that the best evidence available provides good reason to suspect that fish are sentient and can feel pain, two common criteria that philosophers frequently posit as sufficient for moral consideration.¹² As the leading book on the topic concisely summarizes, “if we already accept that mammals and birds are sentient creatures that have the capacity to experience positive and negative emotions—pleasure or suffering, [*sic*] we should conclude that there is now sufficient evidence to put fish alongside birds and mammals.”¹³ This conclusion is not limited to big fish, who one might intuit be more aware because of larger brains or nervous systems; indeed, important evidence for this conclusion comes even from relatively small fish like gobies,¹⁴ zebrafish,¹⁵ and even tiny juveniles.¹⁶ The same general conclusion is plausibly true for many of the non-fish animals, such as shellfish, that also fall victim to CWISs.¹⁷ Thus, if one accepts that mammals and birds can experience pain or pleasure, then good reason exists to suspect that impingement and entrainment cause massive amounts of suffering and foregone pleasure to similarly sentient aquatic animals.

To place *Entergy* in perspective, note that it involves a single government policy under a single agency. The rest of the EPA’s policies—

¹² For a deeper discussion of the moral case for valuing animals, see *infra* Part II.A.

¹³ VICTORIA BRAITHWAITE, DO FISH FEEL PAIN? 113 (2010).

¹⁴ See *id.* at 88–89 (discussing how a study involving gobies, “little fish” “with a brain about the size of a small pea,” provides “an excellent example of access consciousness,” which many deem a necessary condition of sentience).

¹⁵ See Lynne U. Sneddon, *Do Painful Sensations and Fear Exist in Fish?*, in ANIMAL SUFFERING: FROM SCIENCE TO LAW 93, 103 (2013) (concluding, largely on the basis of many studies of zebrafish, that “[f]ish do fulfil the criteria for both animal pain and fear”).

¹⁶ See Javier Lopez-Luna et al., *Behavioural Responses of Fish Larvae Modulated by Analgesic Drugs After a Stress Exposure*, 195 APPLIED ANIMAL BEHAVIOUR SCI. 115, 155 (2017) (finding, consistent with a subjective pain experience, that zebrafish larvae display behavioral changes when subjected to painful stimuli that are reduced with analgesics); Peter J. Steenbergen & Nabila Bardine, *Antinociceptive Effects of Buprenorphine in Zebrafish Larvae: An Alternative for Rodent Models to Study Pain and Nociception?*, 152 APPLIED ANIMAL BEHAVIOUR SCI. 92, 92 (2014) (same); Lois Jane Oulton et al., *Predator Recognition in Rainbowfish, Melanotaenia duboulayi, Embryos*, 8 PLoS ONE, Oct. 2013, at 1, 3 (concluding, consistent with innate consciousness and subjective awareness, that “[r]ainbowfish embryos can distinguish between chemical cues emanating from various potential predators and from alarm substances released from damage inflicted on conspecifics”); Valentina Malafoglia et al., *Extreme Thermal Noxious Stimuli Induce Pain Responses in Zebrafish Larvae*, 229 J. CELLULAR PHYSIOLOGY 300, 307 (2013) (establishing “a new assay of nociception in zebrafish larvae that induces effects similar to post-burn neuropathic pain as seen in mammals”).

¹⁷ See, e.g., Barry McGee & Robert W. Elwood, *Shock Avoidance by Discrimination Learning in the Shore Crab (Carcinus maenas) Is Consistent with a Key Criterion for Pain*, 216 J. EXPERIMENTAL BIOLOGY 353, 356–57 (2013) (reporting data that are “consistent with expectations should these animals experience pain” (citations omitted)).

along with the rest of the *entire administrative state's* policies—collectively have massive implications for animals. Just a few representative examples of the administrative state's power over animals' wellbeing and lives include:

- Creating standards for cultured meat labels, which could influence demand for meat derived from animal slaughter;¹⁸
- Establishing requirements for preventing and offsetting harms to some wild animals;¹⁹ and
- Finalizing standards requiring more humane handling, transportation, slaughter, and living conditions for certain animal-derived “USDA organic” foods.²⁰

However, notwithstanding how enormous these gains and losses are (or could be), few if any government agencies take a systematic approach to estimating, integrating, and valuing gains and losses to animals quantitatively even when they do cost-benefit analyses. This omission matters. Cost-benefit analysis, which drives many regulatory decisions in the United States,²¹ compares monetized benefits to monetized costs. If an agency monetizes all of a policy's costs and only a small subset of its benefits, the resulting analysis is skewed. Too many such policies will not be enacted when they should be, or policies may be less stringent than they should be.²² This omission can be particularly impactful for water-resource projects like the one at issue in *Entergy*.²³ Indeed, the EPA itself seems acutely aware of the problems of incomplete cost-benefit analyses in the CWIS context, writing, “A comparison of complete costs and incomplete benefits does not provide an accurate picture of net benefits to society.”²⁴ As Justice Stevens notes in his dissent in *Entergy*, such a skewed analysis “could result in serious misallocation of resources.”²⁵

¹⁸ See Labeling of Meat or Poultry Products Comprised of or Containing Cultured Animal Cells, 86 Fed. Reg. 49,491 (Sept. 3, 2021).

¹⁹ See, e.g., Permits for Incidental Take of Eagles and Eagle Nests, 87 Fed. Reg. 59,598 (Sept. 30, 2022) (proposing requirements for obtaining permits to harm or kill bald or golden eagles and their nests); Regulations Governing Take of Migratory Birds; Revocation of Provisions, 86 Fed. Reg. 54,642 (Oct. 4, 2021) (prohibiting certain actions that unintentionally injure or kill migratory birds).

²⁰ See National Organic Program (NOP); Organic Livestock and Poultry Standards, 88 Fed. Reg. 75,394 (Nov. 2, 2023).

²¹ See generally CASS R. SUNSTEIN, *THE COST-BENEFIT REVOLUTION* (2018).

²² The inverse is true if an agency fails to monetize costs to animals but quantifies all benefits.

²³ W. KIP VISCUSI, *PRICING LIVES: GUIDEPOSTS FOR A SAFER SOCIETY* 10 (2018) (noting that, for “water-resource projects,” “government agencies places almost exclusive emphasis on the monetized effects” and that “environmental consequences received qualitative discussion but were largely set aside in factor of emphasis on the series of tangible economic benefits that were monetized”).

²⁴ ENV'T PROT. AGENCY, *supra* note 4, at D1-5.

²⁵ *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 238 (2009) (Stevens, J., dissenting) (quoting 69 Fed. Reg. 41,567, 41,660 (July 9, 2004)). The EPA lists, among the “many

This Article argues for reforming cost-benefit analyses to correct this particular skew. It argues that agencies can and should reject this status quo that completely fails to capture animals' interests in quantitative cost-benefit analyses. It does so through two claims. The Weak Claim argues that, unless an organic statute clearly dictates otherwise, an agency *may* value animals in cost-benefit analyses. The Strong Claim argues that, if a policy would substantially impact animals and no clear statutory prohibition exists, then an agency *should* or even *must* do so. These claims flow from simple premises that most moral and legal systems already accept in some form: that many animals experience positive and negative welfare, and that this welfare matters.

This Article Proceeds by first observing in Part II that a gap persists between literature on animals' interests and the literature on cost-benefit analysis, and explaining why this gap is surprising. Part III begins to fill that gap by elaborating on and defending the Weak and Strong Claims. Part IV proposes a set of criteria for assessing proposed methodologies for such valuations, then Part V proposes a sort of "menu" of methodological options for valuing animals, briefly assessing them against those criteria. Part VI outlines a few miscellaneous considerations to aid in implementing these methodologies. Part VII illustrates this proposal's potential power by examining a range of administrative decisions in which explicitly valuing animals' interests could have plausibly made a difference. As a sort of "proof of concept," it revisits the policy decision at issue in *Enterger* with these considerations, showing that even a basic breakeven analysis focused on fishes' interests can help paint it in a novel and useful light. Part VIII concludes.

II. A SURPRISING GAP PERSISTS BETWEEN LITERATURE ON ANIMALS' INTERESTS AND LITERATURE ON COST-BENEFIT ANALYSIS.

This Article bridges a persistent gap in the literature: the intersection between animals' interests and cost-benefit analysis. This gap is surprising given that cost-benefit analysis mirrors a welfarist moral view and that virtually all welfarists believe that animals' welfare matters. Yet literature on

benefits that were not accounted for in the benefits analysis," "increas[ing] the numbers of [aquatic] individuals present, increas[ing] local and regional fishery populations (a subset of which was accounted for in the benefits analysis), and ultimately contribut[ing] to the enhanced environmental functioning of affected waterbodies (rivers, lakes, estuaries, and oceans) and associated ecosystems." ENV'T PROT. AGENCY, *supra* note 4, at D1-5. It further "believes that the economic welfare of human populations is expected to increase as a consequence of the improvements in fisheries and associated aquatic ecosystem functioning due to the final . . . regulation," even though it did not quantify those benefits either. *Id.*

representing animals' interests in government policy largely omits discussion of cost-benefit analysis, and literature on cost-benefit analysis largely omits discussion of animals. This Section illustrates this gap.

A. Cost-Benefit Analysis Is Welfarist, and Welfarism Extends to Animals.

Notwithstanding numerous disagreements regarding cost-benefit analysis's proper role in agency decisionmaking, consensus generally exists that it influences many regulatory decisions.²⁶ Consensus also exists regarding those analyses' goals. For example, Professor Cass R. Sunstein—one of cost-benefit analysis's leading proponents—frames such analysis as “an effort to implement” the philosophical concept of “*welfarism*.”²⁷ Professor Matthew D. Adler—who supports cost-benefit analysis's general aims but feels that other methodologies are better suited to achieving them—agrees, calling cost-benefit analysis “consequentialist and, more specifically, welfarist.”²⁸ And Professor Douglas A. Kysar—one of cost-benefit analysis's most outspoken opponents—describes such analyses as “ask[ing] policy makers to maximize the overall welfare impacts of regulation.”²⁹ Thus, when agencies conduct cost-benefit analyses, “the relevant task” is “to select the standard that, according to the agency's calculation, maximizes overall social welfare.”³⁰

As some have pointed out in considerable detail, cost-benefit analysis does not measure welfare perfectly.³¹ But, despite these limitations, these and other scholars widely agree that it is *meant* to stand as a proxy, however imperfect, for welfare impacts—or, alternatively, that it tracks welfare under certain assumptions. Thus, when the government conducts cost-benefit

²⁶ See generally SUNSTEIN, *supra* note 21.

²⁷ *Id.* at 23.

²⁸ MATTHEW D. ADLER, MEASURING SOCIAL WELFARE: AN INTRODUCTION 31 (2019).

²⁹ DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY 13 (2010).

³⁰ *Id.* at 7.

³¹ To summarize briefly why this is so, cost-benefit analysis operates by “sum[ming] *monetary equivalents*.” ADLER, *supra* note 28, at 31. Those “monetary equivalents” represent how much money one would be willing to pay for some benefit or how much money one would demand to incur some cost. See *id.* Expressing welfare in terms of monetary equivalents ignores the diminishing marginal utility of income and benefits' and costs' distribution—both of which play strong roles in determining a policy's welfare impacts. See *id.* at 33–36. Put differently, traditional cost-benefit analysis assumes that a given dollar gain (or loss) carries the same effect regardless of whether it accrues to a rich or poor person. These limitations leave cost-benefit analysis vulnerable to the critique that it produces a skewed welfare assessment. See *id.* at 33 (arguing that, if comparing people's welfare is permissible, cost-benefit analysis “has real deficits as compared to the [social welfare function] approach”).

analysis, its inquiry centers on welfare.

Notably, welfarists have achieved a near consensus that their philosophical tradition is not limited to human welfare. That many animals experience positive and negative welfare is virtually undisputed.³² Thus, animals represent another source of welfare that could potentially count.³³ And welfarists broadly agree that their welfare indeed should count.

To understand why, arguments sounding in the utilitarian moral tradition are telling, as the welfarism on which cost-benefit analysis rests considers and approximates *at least* utility.³⁴ Perhaps the most foundational utilitarian, Jeremy Bentham, saw utility as no less morally significant when animals experience it; as he noted in a much-quoted assertion, “The question is not, Can they *reason*? nor, Can they *talk*? but, Can they *suffer*?”³⁵ Far from representing an outlier among utilitarians, “Bentham’s notions . . . continue to underwrite the most influential arguments made in support of moral and legal standing for nonhuman life-forms.”³⁶ Indeed, arguably the most foundational writing in modern animal ethics comes from another utilitarian, Peter Singer, who famously argued, “If a being suffers[,] there can be no moral justification for refusing to take that suffering into consideration.”³⁷ According to him, considering only humans’ pleasure and pain to matter morally constitutes arbitrary “‘speciesism,’ by analogy with racism,” defined as “a prejudice or attitude of bias in favor of the interests of members of one’s own species and against those of members of other species.”³⁸ Indeed, even

³² See, e.g., *id.* at 28 (“A being is a ‘welfare subject’ if it is sensible to speak of the welfare of that being—if we can coherently ask whether the being is better off in one outcome than in a second. Rocks and bacteria aren’t welfare subjects, but non-human mammals (at least) clearly are.”); Cass R. Sunstein, *Introduction: What Are Animal Rights?*, in ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS 3, 5 (Cass R. Sunstein & Martha C. Nussbaum eds., 2004) (“Of course some people, including Descartes, have argued that animals lack emotions and that people should be allowed to treat them however they choose. But to most people, including sharp critics of the animal rights movement, this position seems unacceptable.”).

³³ To clarify, this Article broadly groups concepts like (i) pain and suffering and (ii) pleasure and welfare. While subtler gradations surely exist within and between these sorts of categories, exploring those subtleties fully is beyond this Article’s scope. For simplicity of discussion, it refers to these concepts, and the related idea of “interests,” rather broadly and interchangeably.

³⁴ See SUNSTEIN, *supra* note 21, at 23 (calling “welfarism” “broader” than “Benthamite utilitarianism” and noting that, while welfarism “does not focus solely on pleasures and pains,” such units of utility are nevertheless “important”).

³⁵ JEREMY BENTHAM, THE PRINCIPLES OF MORALS AND LEGISLATION 311 (Prometheus, 1988) (~1781).

³⁶ KYSAR, *supra* note 29, at 184.

³⁷ PETER SINGER, ANIMAL LIBERATION: THE DEFINITIVE CLASSIC OF THE ANIMAL MOVEMENT 9 (updated ed., 2009).

³⁸ *Id.* at 6. One might also use “speciesism” to describe unjustified preferences for certain nonhuman species—such as dogs or so-called “megafauna” like polar bears or orcas—over

many utilitarians who differ with Singer on the *particulars* of precisely how to account for animals' pleasure and pain would still accord all sentient animals *some* moral standing.³⁹

Given such consensus among utilitarian philosophers that no solid moral basis exists to deny animals' welfare, little basis remains to conclude otherwise in the domain of cost-benefit analysis, which largely stems from that ethical tradition.⁴⁰ Perhaps such a finding allows agencies properly to exclude from their analyses animals without the cognitive capacity to suffer. But little basis exists to refuse to account for "suffering-capable" animals' interests completely.⁴¹

B. Yet Literature on Animals in Policymaking and Literature on Cost-Benefit Analysis Largely Do Not Overlap.

Some literature exists on how policymaking should account for animals' interests, but that literature largely explores avenues besides regulatory analyses, like cost-benefit analysis. As a representative example, take Professor Charlotte E. Blattner's analysis of how legal regimes account (and fail to account) for animals' morally relevant sentience.⁴² Her analysis focuses on statutes, constitutional provisions, and treaties—not regulations or cost-benefit analyses.⁴³ So too with Professor Alasdair Cochrane's more aspirational account of including animals in policymaking, which calls for a more expansive political system centered on "sentient equality" and "sentient rights" to replace human-centric politics.⁴⁴ His proposed solution involves "democratic institutions" that are "comprised of dedicated animal representatives"⁴⁵—with no discussion of existing regulatory structures or

others. See, e.g., Lucius Caviola & Valerio Capraro, *Liking but Devaluing Animals: Emotional and Deliberative Paths to Speciesism*, SOC. PSYCHOL. & PERSONALITY SCI., Feb. 17, 2020, at 1, 1.

³⁹ See, e.g., SHELLY KAGAN, HOW TO COUNT ANIMALS MORE OR LESS 3 (2019) (endorsing, in contrast to Singer, "a *hierarchical* approach, where animals count, but count in a lesser way").

⁴⁰ See, e.g., SUNSTEIN, *supra* note 21, at 23 (calling "pleasures and pains" "important," albeit not the only "important" consideration, for welfarism and therefore for cost-benefit analysis); KYSAR, *supra* note 29, at 13 (mentioning taking "a seeming detour" to discussing "utilitarianism" as analogous to "cost-benefit analysis," and rejecting the former on the way to rejecting the latter).

⁴¹ Drawing lines between "suffering-capable" and "suffering-incapable" animals, while critical to much within this Article, is beyond its scope.

⁴² See Charlotte E. Blattner, *The Recognition of Animal Sentience by the Law*, 9 J. ANIMAL ETHICS 121 (2019).

⁴³ See *id.* at 122–25.

⁴⁴ ALASDAIR COCHRANE, SENTIENTIST POLITICS: A THEORY OF GLOBAL INTER-SPECIES JUSTICE 14 (2018).

⁴⁵ *Id.* at 36.

cost-benefit analyses. The same is also true for the political theory of animal rights that Professors Sue Donaldson and Will Kymlicka advance, which seeks “to strip the last vestiges of human chauvinism from our moral theories” by advancing new understandings of how animals intersect with political systems⁴⁶—but through discussions of rights, and, again, not regulations or their underlying cost-benefit analyses. Similarly, several researchers identify policy questions that animal-welfare estimates could help inform and identify efforts to help develop such estimates,⁴⁷ but they do not identify regulations or their cost-benefit analyses as use cases. Of course, focusing on other domains is understandable, as those other domains may matter a great deal for animals. But regulatory decisionmaking, including through cost-benefit analysis, also matters a great deal,⁴⁸ making this omission surprising.

Literature on cost-benefit analysis also tends to give scant attention to its possible link with animals’ interests. In a major book on cost-benefit analysis, for instance, Sunstein uses animal welfare as an example of a “good[] that ha[s] strong moral justifications” but for which “people may be unwilling to pay a great deal.”⁴⁹ Yet he does not explore how precisely to overcome that shortcoming besides to advocate jettisoning the empirical bases on which cost-benefit analysis rests, like measures of willingness to pay.⁵⁰ Kysar also observes that “cost-benefit analysis is typically premised on a liberal conception in which only humans—and, more specifically, only presently living individual humans—are capable of holding interests.”⁵¹ But Kysar notes this only in advocating against welfarism-based regulatory tools like cost-benefit analysis altogether.

Most works that identify this gap speak about it only at a high level. For instance, Professor Jeff Sebo lists “includ[ing] animals in health and environmental impact assessments,” including cost-benefit analyses, as one way to include animals in health and environmental policy frameworks.⁵² But this discussion “focus[es] on the big picture,” leaving most details for future

⁴⁶ SUE DONALDSON & WILL KYMLICKA, *ZOOPOLIS: A POLITICAL THEORY OF ANIMAL RIGHTS* 32 (2011).

⁴⁷ Mark Budolfson et al., *Animal Welfare: Methods to Improve Policy and Practice*, 381 *SCI.* 32 (2023).

⁴⁸ For examples of how regulations affect animals, see *supra* Part I; *infra* Part VII.

⁴⁹ SUNSTEIN, *supra* note 21, at 58; see also CASS R. SUNSTEIN, *VALUING LIFE* 124 (2014) [hereinafter SUNSTEIN, *VALUING LIFE*] (also urging that “the market model is inapplicable” to “animal welfare” for similar reasons).

⁵⁰ SUNSTEIN, *supra* note 21, at 58.

⁵¹ KYSAR, *supra* note 29, at 180; see also *id.* (“For that reason, the value of nonhuman life-forms is acknowledged only to the extent that identifiable human individuals value those life-forms . . .”).

⁵² JEFF SEBO, *SAVING ANIMALS, SAVING OURSELVES: WHY ANIMALS MATTER FOR PANDEMICS, CLIMATE CHANGE, AND OTHER CATASTROPHES* 100 (2022).

work.⁵³ Thus, a gap persists in the literature regarding precisely whether and how cost-benefit analysis could account for animals’ interests.

This gap matters. It helps reinforce the status quo in which analyses of *welfare* omit all *welfare* that accrues to nonhumans. These nonhumans then have little to no voice in analyses that drive a great number of hugely consequential regulatory decisions—including, for example, the decision at issue in *Entergy* that impacted billions of totally unvalued aquatic animals.⁵⁴

Only scant literature has begun to grapple with the particulars of how one could conduct an interspecies cost-benefit analysis. For example, in a book published more than a decade ago, Professors F. Bailey Norwood and Jayson L. Lusk discuss what further “research is needed on the measurement of animal well-being” in order to conduct what they call “non-speciesist” cost-benefit analysis, though they reject it in large part because they feel that “it is doubtful that real policies will respond to any species besides the one which possesses political power.”⁵⁵ Relevant research was in its nascent stages then,⁵⁶ and little has changed by now.

More recently, economist Romain Espinosa proposed a method to monetize animals’ interests.⁵⁷ However, as discussed more below, his particular approach—while an important contribution to this literature—depends on analytical approaches many American agencies reject.⁵⁸ By and large, therefore, the gap between animal interests and American cost-benefit analyses persists. This Article works toward filling it.

III. THE WEAK AND STRONG CLAIMS

This Section details why the law rejects (or, at least, should reject) the status quo of valuing animals’ interests at zero in cost-benefit analyses. Specifically, it explains the Weak Claim—that agencies usually *may* reject this status quo. It then explains the Strong Claim—that agencies often *must* do so.

A. The Weak Claim: Agencies May Value Animals’ Interests.

The Weak Claim holds that administrative agencies may value animals’ interests when they base regulations on cost-benefit analyses—at

⁵³ *Id.* at 92.

⁵⁴ *See supra* Part I.

⁵⁵ F. BAILEY NORWOOD & JAYSON L. LUSK, COMPASSION, BY THE POUND: THE ECONOMICS OF FARM ANIMAL WELFARE 217 (2011).

⁵⁶ *See id.* (“[K]nowledge of measuring animal preferences is still cursory.”)

⁵⁷ *See* Romain Espinosa, *Animals and Social Welfare*, SOC. CHOICE & WELFARE, Dec. 22, 2023.

⁵⁸ *See infra* notes 227–245 and accompanying text.

least when no statutes bar them from relying on such analyses in the first place⁵⁹ or from considering these interests in particular.⁶⁰ The Claim must first contend with formal legal constraints on agencies' authority to regulate. These constraints could come from the Constitution, organic statutes, the Administrative Procedure Act ("APA"), and Executive Order 12866 and others like it. A closer look reveals that, with the possible exception of some organic statutes (though no obvious examples are apparent), none of these possible constraints actually bars agencies from considering animals' interests. It then must contend with the counterargument that, absent formal legal *authorization*, agencies may not incorporate this value into their regulatory decisions—a claim that, on further examination, fails to capture modern administrative law doctrine and practice surrounding executive rulemaking. This Part elaborates on each part of this argument in turn.

1. Almost or Literally No Formal Legal Constraints Are Barriers.

The first and perhaps most obvious barrier to the Weak Claim are formal legal constraints on agencies' regulatory authority. The Weak Claim's opponents may appeal to, again, the Constitution, organic statutes, the APA, and Executive Order 12866 and its successors. But, except possibly some organic statutes, none of these actually prohibits valuing animals. This Section examines each of these in turn.

The Constitution. Most scholars—at least most who believe in the administrative state's constitutional legitimacy—agree that agencies' constitutional authority to regulate stems from Article I's Necessary and Proper Clause.⁶¹ While the Supreme Court has "long read this provision to give Congress great latitude in exercising its powers,"⁶² it has also noted, at

⁵⁹ This Article takes no stand on when agencies are legally permitted to conduct cost-benefit analyses. Of course, even the Weak Claim cannot stand in cases like *Whitman v. American Trucking Associations, Inc.*, 541 U.S. 457 (2001), in which agencies have no legal authority to rely on such analyses, *see id.* at 471 ("The text of § 109(b) [of the Clean Air Act ("CAA")] . . . unambiguously bars cost considerations from the [national ambient air quality standard]-setting process . . .").

⁶⁰ While this condition must be assessed on a statute-by-statute basis, Part III.A.2. makes some general observations to argue that statutes would rarely, if ever, be a barrier.

⁶¹ U.S. CONST. art. I, § 8, cl. 18 (granting Congress authority "[t]o make all Laws which shall be necessary and proper for carrying into Execution . . . all . . . Powers vested by this Constitution in the Government of the United States"); *see* STEPHEN G. BREYER ET AL., ADMINISTRATIVE LAW AND REGULATORY POLICY: PROBLEMS, TEXT, AND CASES 45 (8th ed. 2017) ("Creating an agency and defining its authority is a means of 'carrying into Execution' enumerated powers."); *La. Pub. Serv. Comm'n v. FCC*, 476 U.S. 355, 374 (1986) ("[A]n agency literally has no power to act . . . unless and until Congress confers power upon it.").

⁶² *Nat'l Fed'n of Indep. Bus. v. Sebelius*, 567 U.S. 519, 537 (2012) (citing *McCulloch v.*

least in dictum, that such latitude “can never extend so far as to disavow restraints on federal power that the Constitution carefully constructed.”⁶³ One might argue that such constitutional restraints include privileging interests besides those of “the *People* of the United States,”⁶⁴ which seems limited to humans. Thus, the argument goes, any measure of government accountability toward animals that comes at “the People[’s]” expense is illegitimate.

This argument is flawed on several counts. First, the implied premise that “the People” would reject this Article’s arguments to value animals’ interests is not obviously correct. Indeed, voters have historically demonstrated at least some willingness to sacrifice humans’ wellbeing in order to increase animals’ welfare.⁶⁵ Thus, even on its own terms, this argument cannot take for granted how “the People” would react to this Article’s proposal.

Second, other examples show governmental accountability toward others besides “the People of the United States,” without constitutional concern. One fitting example involves calculating the social cost of greenhouse gases (“SC-GHG”), or “a measure, in dollars, of the long-term damage done by a ton of carbon dioxide (CO₂) emissions,” or other greenhouse gas emissions, “in a given year.”⁶⁶ A vigorous debate in calculating such figures involves whether agencies integrating the SC-GHG should use *domestic* or *global* SC-GHG figures—that is, costs that accrue to Americans *only* or to Americans *and foreigners*.⁶⁷ Yet that debate rarely revolves around whether global SC-GHG figures are constitutionally legitimate.⁶⁸ Indeed, even as it moved away from the Obama administration’s

Maryland, 17 U.S. (4 Wheat.) 316, 421 (1819)).

⁶³ *Id.* at 538.

⁶⁴ U.S. CONST. pmbl. (emphasis added).

⁶⁵ For example, voters in California and Massachusetts passed ballot measures banning selling food products in state that derive from hens housed in battery cages, pigs housed in gestation crates, or calves housed in veal crates, even though such measures presumably resulted in higher egg, pork, and veal prices. *Farm Animal Confinement Bans by State*, ASPCA, <https://www.aspc.org/animal-protection/public-policy/farm-animal-confinement-bans> (last visited Mar. 1, 2020). Voters in Arizona, California, Florida, and Massachusetts also passed ballot measures banning at least some of those forms of confinement on farms within the states even though such bans could presumably hurt at least some in-state farmers. *Id.* Examples like these evince a willingness among some voters to put animal-welfare concerns ahead of human concerns.

⁶⁶ *The Social Cost of Carbon*, ENV’T PROT. AGENCY, https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html (last updated Jan. 19, 2017).

⁶⁷ See, e.g., Jonathan S. Masur & Eric A. Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis* 28–32 (John M. Olin Law & Econ. Working Paper No. 525, 2010), https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1062&context=public_law_and_legal_theory (discussing and opining on the debate).

⁶⁸ See, e.g., *id.* (framing the debate between using domestic or global SC-GHG figures in

embracing global SC-GHG figures,⁶⁹ the Trump administration’s EPA never called global figures constitutionally prohibited, but instead rooted its conclusion in a directive from the Office of Information and Regulatory Affairs (“OIRA”).⁷⁰ In other domains, the Trump administration had been quick to call Obama-era regulations it disliked flatly unconstitutional.⁷¹ That President Trump’s EPA did not do so in this instance provides good *prima facie* evidence that even it accepted that global SC-GHG figures would be constitutionally legitimate, even if unwise. And if the Constitution even permits agencies’ accounting for foreigners’ interests through a global SC-GHG figure, then it seems that regulatory authority is not limited to benefiting only “the People of the United States.”

Third, many existing federal laws stem in at least large part from a desire to promote animals’ welfare, even at a nontrivial expense to humans, and none has failed under constitutional scrutiny. For example, the Humane Methods of Slaughter Act prescribes certain humane standards for slaughtering livestock;⁷² the Animal Welfare Act prescribes minimum standards for certain animals in research, exhibition, transport, and sale by dealers;⁷³ the Horse Protection Act prohibits showing, selling, auctioning, exhibiting, or transporting horses who had been subjected to a painful process

terms of canons of statutory interpretation and normative, political, and institutional dimensions of policy, but not in terms of constitutional legitimacy).

⁶⁹ See INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866, at 10 (2010) (“Because of the distinctive nature of the climate change problem, [the EPA under President Obama centered its] attention on a global measure of SC[-GHG].”).

⁷⁰ ENV’T PROT. AGENCY, REGULATORY IMPACT ANALYSIS FOR THE REVIEW OF THE CLEAN POWER PLAN: PROPOSAL 43 (2017) (defending its using domestic rather than global SC-GHG figures by referring to OIRA’s “guidance”).

⁷¹ See, e.g., Letter from Jefferson B. Sessions III, Attorney Gen., U.S. Dep’t of Justice, to Elaine C. Duke, Acting Sec’y, U.S. Dep’t of Homeland Sec. (Sept. 4, 2017), <https://www.justice.gov/opa/speech/file/994651/download> (asserting that the Obama-era Deferred Action for Childhood Arrivals policy suffers from “constitutional defects”); The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. 22,250, 22,252 (Apr. 21, 2020) (codified at 33 C.F.R. § 328 and scattered sections of 40 C.F.R.) (claiming that the Trump administration’s EPA’s definition of “waters of the United States” under the Clean Water Act, unlike the Obama-era definition it replaces, is “within the scope of the Federal government’s authority” under “the Commerce Clause of the U.S. Constitution”).

⁷² Act of Aug. 27, 1958, Pub. L. No. 85-765, 72 Stat. 862 (codified as amended at 7 U.S.C. §§ 1901–07); see also *id.* § 1, 72 Stat. at 862 (justifying the law based on its “prevent[ing] needless suffering” among livestock).

⁷³ Act of Aug. 24, 1966, Pub. L. No. 89-544, 80 Stat. 350 (codified as amended at 7 U.S.C. §§ 2131–59); see also *id.* § 1, 80 Stat. at 350 (justifying the law based on its “insur[ing] that certain animals” “are provided humane care and treatment”).

called “soring”;⁷⁴ and the so-called Twenty-Eight-Hour Law prohibits transporting most animals “for a period longer than twenty-eight consecutive hours without unloading” for “at least five consecutive hours.”⁷⁵ If these laws are constitutional, even though they very arguably privilege animals’ interests over humans’, then the Constitution is no barrier to agencies doing so in regulatory decisionmaking.

Finally, even if privileging animals’ interests were somehow a constitutionally illegitimate interest—though the above argument lays out why it is not—that need not end the inquiry. On a practical level, few to no regulations exist in a vacuum. An agency can almost always find another constitutionally legitimate end to claim that valuing animals helps it pursue, such as the many “unelaborated social or moral value judgments” that the Court has upheld as legitimate.⁷⁶ Which such “judgments” the government could plausibly claim may vary among different regulations, but *some* interest is likely to pass muster given the Court’s low bar on that point.⁷⁷

Organic Statutes. Opponents of an agency decision to value animals may allege that Congress, which authors the statutes that define and constrain agencies’ authority, did not confer authority to consider animals’ interests in regulatory decisionmaking.⁷⁸ In other words, agencies have no *organic statutory* authority to value animals’ interests. Doctrinally, opponents might assert that agencies claiming statutory authority to value animals fail under Step One from *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*⁷⁹ Because organic statutes vary widely, this line of attack necessitates

⁷⁴ Horse Protection Act of 1970, Pub. L. No. 91-540, 84 Stat. 1404 (codified as amended at 15 U.S.C. § 1821–31); *see also id.* § 3, 84 Stat. at 1405 (justifying the law based on the finding “that the practice of soring horses for the purposes of affecting their natural gait is cruel and inhumane treatment of such animals”).

⁷⁵ Rev. Stat. U.S. § 4386 (1873) (codified as amended at 49 U.S.C. § 80,502).

⁷⁶ Note, *Let the End Be Legitimate: Questioning the Value of Heightened Scrutiny’s Compelling- and Important-Interest Inquiries*, 129 HARV. L. REV. 1406, 1410 (2016).

⁷⁷ *See id.* (“In most heightened-scrutiny cases, the Court easily blesses the state’s asserted interest as satisfying the requisite standard.”).

⁷⁸ This argument and this Article’s response assume that “congressional intent” is a coherent concept, a position that many reject. *See, e.g.,* Kenneth A. Shepsle, *Congress Is a “They,” Not an “It”: Legislative Intent as Oxymoron*, 12 INT’L REV. L. & ECON. 239, 239 (1992) (“Legislative intent is an internally inconsistent, self-contradictory expression. Therefore, it has no meaning.”). This Article overlooks this complication for simplicity of discussion.

⁷⁹ *See* 467 U.S. 837, 842 (1984) (establishing that “a court review[ing] an agency’s construction of the statute it administers” must first ascertain “whether Congress has directly spoken to the precise question at issue,” in which case “that is the end of the matter”). While, at the time of writing, *Chevron* faces an uncertain future, *see, e.g.,* Kate Shaw, *This Quiet Blockbuster at the Supreme Court Could Affect All Americans*, N.Y. TIMES (Nov. 22, 2023), <https://www.nytimes.com/2023/11/22/opinion/blockbuster-supreme-court-administrative.html>, this Article uses it to clarify the explanation because many readers are likely familiar with its structure.

statute-by-statute inquiries. Some statutes might prohibit cost-benefit analysis generally,⁸⁰ while others might allow such analyses but mandate that they omit animals' interests.⁸¹

Although a statute-by-statute analysis is beyond this Article's scope, some observations are possible in the abstract. Opponents may allege that such a fundamental shift in administrative priorities is not explicit in any organic statutes or in the APA and that Congress "does not, one might say, hide elephants in mouseholes."⁸² Absent *explicit* congressional authorization in the form of a clear statement,⁸³ a challenger might argue, agencies have no authority to value animals. This may be especially true insofar as the major questions doctrine—which demands such clear statements to confer authority to decide questions of major political or economic significance—becomes more central to federal courts' decisionmaking.⁸⁴

Three responses address this line of attack. The first response, borrowing from Justice Gorsuch, is to ask, "But where's the mousehole?"⁸⁵ The idea that animals' interests matter is not new.⁸⁶ Many people agree with that basic idea,⁸⁷ and many legal systems reflect that belief.⁸⁸ Indeed, anyone who believes that two animals suffering is worse than one suffering—rather than being indifferent between those options—must believe that these animals' interests matter more than zero. The reason why Congress would not intend to follow what is in fact a fairly mainstream view—that animals' interests matter—is not obvious.

⁸⁰ See, e.g., *Whitman v. Am. Trucking Ass'n*, 531 U.S. 457, 464 (2001) (concluding that "economic considerations [may] play no part in the promulgation of ambient air quality standards under Section 109' of the" Clean Air Act (quoting *Lead Industries Ass'n v. EPA*, 647 F.2d 1130, 1148 (D.C. Cir. 1980))).

⁸¹ While no such statute is apparent, this possibility remains.

⁸² *Whitman*, 531 U.S. at 468.

⁸³ Cf. *Gregory v. Ashcroft*, 501 U.S. 452, 461 (1991) (discussing a "plain statement rule" requiring Congress to state explicitly when it wishes to upset usual federalist balances of power).

⁸⁴ See *West Virginia v. Env't Prot. Agency*, 597 U.S. __ (2022) (slip op. at 11) (specifically recognizing "the 'major question doctrine'" for the first time in a Supreme Court opinion).

⁸⁵ *Bostock v. Clayton Cty.*, 140 S. Ct. 1731, 1753 (2020).

⁸⁶ See, e.g., SINGER, *supra* note 37, at 9 (famously arguing decades ago that "[i]f a being suffers[,] there can be no moral justification for refusing to take that suffering into consideration").

⁸⁷ See, e.g., Rebecca Riffkin, *In U.S., More Say Animals Should Have Same Rights as People*, GALLUP (May 18, 2015), <https://news.gallup.com/poll/183275/say-animals-rights-people.aspx> (reporting that 32% of Americans "believe animals should be given the same rights as people, while [an additional] 62% say they deserve some protection").

⁸⁸ See Blattner, *supra* note 42, at 131 (concluding that "an overwhelming majority of [nation] states today recognize that animals are sentient beings who are capable of experiencing pain and suffering," which both "gives rise to moral and legal obligations that humans owe animals on grounds of their sentience" and "provides that animals who are sentient deserve protection").

The second response observes that, if Congress indeed wanted to value animals' interests at zero, then several of its decisions seem surprising. For example, the statutes discussed *supra* Part III.A.1. that focus on animals' welfare—which date back as far as 1873⁸⁹—provide evidence that Congress, as an institution, is at least somewhat sensitive to animals' interests. This sensitivity shows that it cares about animals' welfare more than zero. Thus, assigning to Congress a default intent not to count such welfare *at all* seems out of step with its evident priorities.

The third response is to clarify that, while Congress provides *some* principles on which agency action must be based,⁹⁰ the executive branch still has wide discretion to impose its own additional principles. Indeed, the executive branch already mandates that certain agencies abide by defined, centralized regulatory philosophies and principles when creating policy and conducting cost-benefit analyses, little to none of which was originally statutorily mandated.⁹¹ No clear reason exists to single out valuing animals as a principle that the executive branch may not adopt, as the later subsection about pertinent Executive Orders will discuss. Put differently, if the executive branch could not adopt this principle of valuing animals, that would cast doubt on huge swaths of extrastatutory principles—such as those from executive orders like 12866—that it has followed for decades without wide-scale judicial objection. In sum, while some organic statutes *may* bar valuing animals' interests, such is not likely the case for most such statutes, including those that are silent on the matter.⁹²

The Administrative Procedure Act. The APA mandates that agencies' actions not be “arbitrary, capricious, [or] an abuse of discretion.”⁹³ Assuming

⁸⁹ See Rev. Stat. U.S. § 4386 (1873) (codified as amended at 49 U.S.C. § 80,502) (the Twenty-Eight-Hour Law).

⁹⁰ See *J. W. Hampton, Jr., & Co. v. United States*, 276 U.S. 394, 409 (1928) (requiring Congress to provide an agency with “an intelligible principle” when it “use[s] executive officers in the application and enforcement of a policy declared in law by Congress, and authorize[s] such officers in the application of the Congressional declaration to enforce it by regulation equivalent to law”).

⁹¹ See, e.g., Exec. Order No. 12866, 58 Fed. Reg. 51,735, 51,735–36 (Oct. 4, 1993) (defining a “Regulatory Philosophy” and “Principles of Regulation” governing agency regulations).

⁹² The D.C. Circuit has imposed an added requirement that agencies explain in an administrative record precisely how any “non-statutory criteria” are consistent “with Congress’ stated objectives in” an organic statute. *Indep. U.S. Tanker Owners Comm. v. Dole*, 809 F.2d 847, 854 (D.C. Cir. 1987). But that court has affirmed that, as long as agencies do so, they are “certainly free to consider factors that are not mentioned explicitly in the governing statute.” *Id.*

⁹³ 5 U.S.C. § 706(2)(A). The APA also mandates that agencies undergo certain procedures in order to issue valid regulations. See, e.g., *id.* § 553 (prescribing procedural requirements for informal rules). Because these procedures are no more relevant to the regulation this Article discusses than to regulations on any other topic, this Article takes relevant regulations’ procedural legitimacy as given.

no conflict with an organic statute, as discussed *supra*, valuing animals' interests in cost benefit analyses, if done sufficiently rigorously and carefully, is none of these. Thus, such analyses should survive judicial scrutiny under these standards.⁹⁴

As relevant to this Article's central question, the arbitrary-or-capricious standard prohibits agencies from "rel[ying] on factors which Congress has not intended it to consider, entirely fail[ing] to consider an important aspect of the problem," or "offer[ing] an explanation for its decision that" "is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."⁹⁵ None of these three prohibitions precludes valuing animals' interests. The implication that "Congress has not intended" for agencies to undertake such valuation runs into the same objections leveled *supra* Part III.A.1. in discussing congressional intent under organic statutes.

Opponents may claim that valuing animals "fail[s] to consider" that governmental decisions derive their legitimacy from democracy because the government is (or should be) accountable to voters. Because animals are, of course, not voters, the government is not accountable to them. In fact, accounting for animals' interests diverts limited resources from programs that would benefit voters. Thus, the argument goes, accounting for their interests "fail[s] to consider" that "important aspect of the problem" and is therefore arbitrary and capricious.

However, this argument fails on two grounds. First, as discussed *supra* Part III.A.1., voters have historically demonstrated at least some willingness to sacrifice humans' (and voters') wellbeing in order to increase animals' welfare. Thus, the assertion that voters would reject such valuation because it harms them is not obviously correct. Second, the notion that the government is solely responsive to voters is suspect on its own terms. Few would take issue with the government accounting for the interests of noncitizens, children, corporations, felons who cannot vote, and adults who have not registered to vote, even though none of them votes and benefiting them may come at voters' expense. Thus, accounting for nonvoters' interests

⁹⁴ Doctrinally, courts may not entertain APA challenges to cost-benefit analyses unless they are tied to a "final agency action." *Id.* § 704. However, if cost-benefit analyses *inform* such a final action, courts can and often do scrutinize such analyses under the arbitrary-or-capricious standard. *See, e.g.,* Caroline Cecot & W. Kip Viscusi, *Judicial Review of Agency Benefit-Cost Analysis*, 22 GEO. MASON L. REV. 575, 609–11 tbl.1 (2015) (listing cases in which courts reviewed cost-benefit analyses' adequacy); *id.* at 592–603 (describing and analyzing such judicial review).

⁹⁵ *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). Put differently—but doctrinally similarly—a challenger could allege that "the decision was [not] based on a consideration of the relevant factors" or that "there has been a clear error of judgment." *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971).

does not seem democratically fatal. The same is true if the relevant criterion is instead paying taxes; for example, prisoners and disabled individuals who cannot work may pay nothing to, and may only draw from, the public fisc, but their welfare surely matters in policy decisions.

Opponents may then turn to the prohibition against overly “implausible” explanations for agencies’ decisions. Yet this argument fares no better. If valuing animals is constitutionally legitimate,⁹⁶ rooted in morality that many people and legal systems accept,⁹⁷ and democratically permissible, then any explanation that simply observes those things should be deemed sufficiently plausible. Thus, review under the APA also should not prevent agencies from valuing animals’ interests.

Executive Order 12866 and Its Successors. A series of Executive Orders announce how Presidents intend for agencies to conduct cost-benefit analyses—at least for executive agencies, or those whose heads are removable at the President’s will.⁹⁸ These Orders also do not constrain agencies from valuing animals in such analyses. For example, while Executive Order 12866 requires “[e]ach agency” it covers to “tailor its regulations to impose the least burden on society . . . consistent with obtaining the regulatory objectives,”⁹⁹ nothing in the Order precludes promoting animals’ interests from being a valid “regulatory objective[.]” Nothing else in that Executive Order mandates a strictly human-centric regulatory philosophy.¹⁰⁰

The same holds true for subsequent Executive Orders governing agency cost-benefit analyses.¹⁰¹ The Obama administration’s Executive Order 13563 explicitly “reaffirms the principles, structures, and definitions governing contemporary regulatory review that were established in Executive Order 12866.”¹⁰² So too for the Biden administration’s Executive Order

⁹⁶ See *supra* Part III.A.1.

⁹⁷ See *supra* Part II.A.; *infra* Part III.B.1.

⁹⁸ See, e.g., Exec. Order No. 12866 § 3(b), 58 Fed. Reg. 51,735, 51,737 (Oct. 4, 1993) (defining the “agenc[ies]” to which the Executive Order applies as excluding “those considered to be independent regulatory agencies”); Administrative Conference of the United States: Adoption of Recommendations, 78 Fed. Reg. 41,352, 41,355 n.4 (July 10, 2013) (confirming this understanding).

⁹⁹ Exec. Order No. 12866 § 1(b)(11), 58 Fed. Reg. at 51,736.

¹⁰⁰ See *generally id.* An opponent might argue that animals’ interests are conspicuously absent from the Order’s list of valid regulatory objectives. See *id.* § 1(a), 58 Fed. Reg. at 51,735 (listing “the health and safety of the public, the environment, or the well-being of the American people”). However, the words “such as” introduce the list, *id.*, suggesting that it is not intended to be exclusive and that animals’ interests could also constitute a “compelling public need.”

¹⁰¹ Notwithstanding its historical importance, this Article does not analyze Executive Order 12,291 because Executive Order 12866 revoked and replaced it. *Id.* § 11, 58 Fed. Reg. at 51,744. It does not analyze any other Executive Orders that are no longer in force.

¹⁰² Exec. Order No. 13563 § 1(b), 76 Fed. Reg. 3821, 3821 (Jan. 21, 2011).

14094.¹⁰³ Thus, the analysis of Executive Order 12866’s objectives applies equally to these successors. Thus, neither Executive Order 12866 nor any of its successors is a barrier to including animals’ interests in cost-benefit analyses.

2. *Agencies Have Discretion to Value Animals’ Interests.*

So far, the Weak Claim has only established that no legal constraints *forbid* agencies from valuing animals’ interests in cost-benefit analyses. The question remains of what legal authority *allows* agencies to do so. Put doctrinally, the question is why animals’ interests is among the factors agencies may consider.¹⁰⁴

An answer comes by way of analogy to regulatory standards that agencies regularly use with little question of authority. Plenty of regulatory philosophies that guide regulatory-impact analyses, like the overriding goal of maximizing net benefits whenever legally permissible and technically feasible, come from within the executive branch itself.¹⁰⁵ The D.C. Circuit explicitly allows agencies to consider extrastatutory values like these, at least if they explain how they are consistent with those that Congress spelled out.¹⁰⁶ And what is more, agencies have historically enjoyed a great deal of deference when deciding what factors their governing statutes allow them to consider,¹⁰⁷ so any ambiguities in the statutes themselves effectively provide even more leeway. That means that, so long as an organic statute does not clearly dictate otherwise, agencies seem well within their statutory authorities to value animals’ interests in cost-benefit analyses. That would be just another extrastatutory authority that agencies can allow to inform their decisions.

B. The Strong Claim: Agencies Must Value Animals’ Interests.

Resolving that agencies have authority to value animals does not resolve whether they should act on that authority. The Strong Claim argues

¹⁰³ Exec. Order No. 14094 § 1(a), 88 Fed. Reg. 21,879, 21,879 (Apr. 11, 2023).

¹⁰⁴ See *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (“Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider”)

¹⁰⁵ See, e.g., Cass R. Sunstein, *The Office of Information and Regulatory Affairs: Myths and Realities*, 126 HARV. L. REV. 1838, 1858 (2013) (describing executive branch officials as “interested in increasing net benefits” and shaping agency rules to meet that goal, even though no statute so mandates in many cases).

¹⁰⁶ See *Indep. U.S. Tanker Owners Comm. v. Dole*, 809 F.2d 847, 854 (D.C. Cir. 1987).

¹⁰⁷ See *Pension Benefit Guar. Corp. v. LTV Corp.*, 496 U.S. 633, 647–52 (1990) (applying *Chevron* deference to an agency’s interpretation of what factors it may consider under the statute it administers).

that they should and, indeed, that they must. This Part elaborates.

Familiar administrative-law doctrine can help to frame the Strong Claim. If (i) a regulation would substantially impact animals, (ii) no statutory barriers prohibit valuing animals in associated cost-benefit analyses,¹⁰⁸ (iii) the relevant agency conducts and relies on a cost-benefit analysis,¹⁰⁹ and (iv) that analysis does not account for those animals' interests when they may have mattered, then that regulation may very well be arbitrary, capricious, or unreasonable under *Chevron* Step Two.¹¹⁰ More specifically, the issuing agency would have “entirely failed to consider an important aspect of the problem,”¹¹¹ and “the decision” would not have been “based on a consideration of the relevant factors.”¹¹² In that sense, agency actions that substantially impact animals *must* value those impacts in any associated cost-benefit analyses, as long as the agency's organic statute so permits. While this claim may be fairly sweeping—casting doubt on many agency cost-benefit analyses—its sweeping nature does not make it automatically incorrect; it makes it, at most, worthy of closer scrutiny.

But perhaps framing the Strong Claim in legally mandatory terms is too strong, if only from a realist perspective: perhaps judges would hesitate to question so many agency analyses.¹¹³ Thus, this Article does not present

¹⁰⁸ See *supra* Part III.A.1.

¹⁰⁹ To clarify, the Strong Claim applies *conditional on* an agency conducting and relying on a cost-benefit analysis. It takes no stand on *when* the Administrative Procedure Act or *Chevron* require agencies to do so. For discussion on that topic, see Cass R. Sunstein, *Cost-Benefit Analysis and Arbitrariness Review*, 41 HARV. ENV'T L. REV. 1, 6 (2017) (arguing that “an agency's failure to engage in a degree of quantification, and to show that the benefits justify the costs, will sometimes leave it vulnerable under arbitrariness review—at least when the governing statute authorizes those steps”); Jonathan S. Masur & Eric A. Posner, *Cost-Benefit Analysis and the Judicial Role*, 85 U. CHI. L. REV. 935, 977–79 (2018) (disputing this account).

¹¹⁰ This framing raises some questions that are important, even critical, to implementing this proposal. For example, agencies must know how substantial an impact the regulation at issue has to have on animals, or how direct such an impact must be, to trigger this requirement. While important, fully addressing those questions is beyond this Article's scope. Preliminary guidance on how direct an impact must be could come from an analogous question in *Department of Transportation v. Public Citizen*, 541 U.S. 752 (2004), which held that the National Environmental Policy Act “requires ‘a reasonably close causal relationship’ between an environmental impact and its alleged cause”—akin to “the ‘familiar doctrine of proximate cause’”—before it mandates that an agency assesses such impacts, *id.* at 767 (quoting *Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983)).

¹¹¹ *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

¹¹² *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971).

¹¹³ *Cf. Pension Benefit Guar. Corp. v. LTV Corp.*, 496 U.S. 633, 646 (1990) (upholding an agency's decision that failed to consider policies not explicitly embodied in its organic statute because, “[i]f agency action may be disturbed whenever a reviewing court is able to point to an arguably relevant statutory policy that was not explicitly considered, then a very large number of agency decisions might be open to judicial invalidation”).

the Strong Claim solely as a near-term litigation strategy. Rather, it also seeks to frame it as a *moral* argument: even if agencies are not obligated to value animals' interests as a matter of *law*, they may be so required as a matter of *ethics*. The two framings rest on similar grounds; in other words, what would render an animal-insensitive cost-benefit analysis arbitrary, capricious, or unreasonable would also likely render it immoral.

A clarification bears noting at the outset. The Strong Claim is "strong" in one sense: it denies that agencies have any discretion over the matter. But it is less strong in another sense: it argues merely that valuing animals at some reasonable level is superior to the status quo of implicitly assigning a value of zero. Indeed, holding that animals' interests do not matter *at all*, and that they may *never* change a regulatory cost-benefit analysis's conclusion, seems the stronger position.

1. Valuing Animals in Cost-Benefit Analyses Is the Only Ethical Option.

This Section briefly states the basic argument for why a legal tool designed to maximize welfare, like cost benefit analysis, ought to account for animals' interests. The argument is rooted in ethical theory, which informs what constitutes legitimate regulation. Of course, much more could be said about animal ethics than is possible within this Article; many articles and books cover the topic in great depth. Thus, this Section gives only a cursory overview of possible approaches to such ethics and mentions briefly why welfarist legal mechanisms should incorporate such approaches' basic tenets. But it does not claim to be exhaustive.

As discussed *supra* Part II.A., cost-benefit analysis is rooted in welfarist moral theory, and any welfarist theory that ignores nonhuman welfare is widely viewed as unacceptably incomplete. As noted in that Section, establishing that welfare matters immediately raises a question of *whose* welfare counts. Some lines between "counting" and "not counting" seem clearly out of bounds. For instance, they clearly cannot owe to characteristics like race, sex, religion, or voter status.

No better is a line owing to citizenship. To put the point starkly: suppose the Department of Transportation were considering a regulation that would prevent some deaths on an interstate highway coming from Canada that both Americans and Canadians use. Suppose (for simplicity) half of the benefits would comprise saved American lives and the other half would comprise saved Canadian lives. In its cost-benefit analysis, would any justification exist for the agency multiplying the total value of all lives saved by 0.5, telling Canadians that their deaths on American highways matter *not*

at all? Most would recoil at the thought.¹¹⁴

Framed this way, the relevant question is whether “species” can provide a more solid basis on which to refuse to consider welfare altogether than characteristics like race, sex, religion, voter status, or citizenship. And under any morally defensible account of obligations to other sentient, welfare-experiencing animals, the answer must be “no.” As discussed *supra* Part II.A., this is widely agreed upon within the welfarist framework of utilitarianism.

Moreover, even if one argues that cost-benefit analysis differs from utilitarianism, and that the former is compatible with competing ethical theories like deontology, that does not end the discussion. One need not be utilitarian to embrace the notion that animals’ interests matter. Many modern works of animal moral and legal philosophy take more absolutist, rights-based approaches than utilitarians like Bentham or Singer do.¹¹⁵ So too for other approaches to ethics, like the capabilities approach.¹¹⁶ Thus, even deviating from a purely utilitarian or even welfarist framework is not sufficient to justify the option of upholding cost-benefit analyses that value animals’ interests at zero.

What is more, considering animals’ sentience—and the ethical obligations that it creates—in law is nothing new. Blattner has observed that, globally, “an overwhelming majority of states today recognize that animals are sentient beings who are capable of experiencing pain and suffering,” which both “gives rise to moral and legal obligations that humans owe animals on grounds of their sentience” and “provides that animals who are sentient deserve protection.”¹¹⁷ While legal systems are far from comprehensive in recognizing sentience’s moral significance,¹¹⁸ the narrow point is that such significance is not foreign to systems of jurisprudence, so considering it in administrative policymaking would not be wholly unusual. Put differently, rejecting it as an illegitimate consideration in this realm would call into question a good deal of longstanding animal-centric jurisprudence in other realms.

All of this establishes that a welfarist regulatory system that fully

¹¹⁴ For an example of agencies validly considering noncitizens’ interests in the context of regulations that impact greenhouse gas emissions, see *supra* Part III.A.1.

¹¹⁵ See, e.g., TOM REGAN, *THE CASE FOR ANIMAL RIGHTS* (1983); STEVEN M. WISE, *RATTLING THE CAGE: TOWARD LEGAL RIGHTS FOR ANIMALS* (2000); GARY L. FRANCIONE & ANNA CHARLTON, *ANIMAL RIGHTS: THE ABOLITIONIST APPROACH* (2015); CHRISTINE M. KORSGAARD, *FELLOW CREATURES: OUR OBLIGATIONS TO THE OTHER ANIMALS* (2018).

¹¹⁶ See, e.g., MARTHA C. NUSSBAUM, *JUSTICE FOR ANIMALS: OUR COLLECTIVE RESPONSIBILITY* (2023).

¹¹⁷ Blattner, *supra* note 42, at 131.

¹¹⁸ See *id.* at 126–131 (discussing caveats to the principle that legal systems account for animal sentience).

ignores animals' welfare is an immoral one. Yet the regulatory status quo does exactly that. Put simply, any tool that purports to center on welfare but that values at zero the welfare experienced by well over ninety-nine percent of beings in its jurisdiction is difficult to defend.

This indefensibility is what renders the Strong Claim less strong than it initially appears. Valuing animals' interests more than zero is the only way to avoid a strongly immoral policymaking process. In that sense, agencies not only *may* but also *should* value these interests. And the same factors that make the Strong Claim the only acceptable moral outcome also make it the only acceptable policy outcome, in the sense that denying it may very well be arbitrary, capricious, or unreasonable under *Chevron* Step 2. In that sense, agencies *must* value these interests.

2. *Counterarguments Fail to Reject the Strong Claim.*

A variety of counterarguments to the Strong Claim may arise from both opponents and proponents of the notion that animals' interests ought to count in policymaking. Opponents may argue, first, that possible methodologies for monetizing these interests are insufficiently rigorous to serve as a basis for regulatory decisionmaking; and second, that animals are so numerous that their interests would undemocratically overwhelm humans'. Pro-animal readers, in turn, may argue, first, that the status quo is good enough at capturing animals' interests; and second, that valuing animals' interests unacceptably trivializes, commodifies, or instrumentalizes those interests. This Section addresses and rejects each argument in turn.

Methodological Limitations. Opponents may challenge the argument to value animals on the grounds of valuation methodologies' perceived theoretical shortcomings. Certainly, that impulse is understandable; regulating on top of faulty theoretical foundations seems dangerous, and opting not to do so seems defensible. Yet this worry should not be overstated. Even if imperfect, regulators should embrace, and courts should require, feasible analytical changes that *improve* decisionmaking, as measured by moving valuations closer to the "true" or "correct" value than under the status quo, which implicitly values animals' interests at zero. Even certain strongly imperfect methodologies surely meet that criterion.

An analogous example is illustrative. Environmental groups have often pushed agencies to consider the SC-GHG in their cost-benefit analyses. An interagency working group under the Obama administration, which included the EPA and the Office of Management and Budget—the "parent" organization for OIRA, which largely oversees agencies' cost-benefit analyses—agreed that "SC[-GHG] estimates can be useful in estimating the social benefits of reducing [greenhouse gas] emissions" in cost-benefit

analyses.¹¹⁹ Yet even this working group conceded that “any effort to quantify and monetize the harms associated with climate change will raise serious questions of science, economics, and ethics and should be viewed as provisional”¹²⁰—hardly a resounding theoretical defense.

Yet despite these conceded limitations, courts have often deemed including such costs in agencies’ cost-benefit analyses not only *permissible*, but even *mandatory*, mirroring this Article’s Weak and Strong Claims. For example, environmental groups, along with various states and territories, challenged a fuel-economy regulation from the National Highway Traffic Safety Administration as arbitrary and capricious under the APA because the agency failed to monetize the SC-GHG when it conducted a cost-benefit analysis.¹²¹ The Ninth Circuit sided with the plaintiffs on the reasoning that, “while the record shows that there is a range of values, the value of carbon emissions reduction is certainly not zero.”¹²²

Indeed, even if agencies quantify some environmental effects *voluntarily*, as when they need not conduct a cost-benefit analysis but choose to do so, courts sometimes express skepticism at failing to quantify the SC-GHG. For instance, in the context of the National Environmental Policy Act (“NEPA”), the Colorado District Court held that, “even though NEPA does not require a cost-benefit analysis, it was nonetheless arbitrary and capricious to quantify the benefits of” proposed coal-mining leases but not the SC-GHG, calling that “half of a cost-benefit analysis.”¹²³

That court rejected two justifications the agency offered for noninclusion that are relevant to this Article. First, the agency “offered a categorical explanation that such an analysis is impossible.”¹²⁴ Clearly, that was not the case; “a tool is and was available: the social cost of carbon protocol.”¹²⁵ Some analogous tools are available for valuing animals, and this Article takes steps toward developing more.¹²⁶

Second, the agency argued that “a more generalized qualitative

¹¹⁹ INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, *supra* note 69, at 2.

¹²⁰ *Id.*; see also ENV’T PROT. AGENCY, EPA REPORT ON THE SOCIAL COST OF GREENHOUSE GASES: ESTIMATES INCORPORATING RECENT SCIENTIFIC ADVANCES 81 (2023), https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf (“[T]he SC-GHG estimates presented in this report still have several limitations, as would be expected for any modeling exercise that covers such a broad scope of scientific and economic issues across a complex global landscape.”).

¹²¹ See *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1181 (9th Cir. 2008).

¹²² *Id.* at 1200.

¹²³ *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014) (*italics omitted*).

¹²⁴ *Id.* at 1190.

¹²⁵ *Id.* (citing INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, *supra* note 69).

¹²⁶ See *infra* Part V.

analysis” should have sufficed.¹²⁷ But the court rejected this contention using reasoning that echoes the Ninth Circuit’s. As the court put it, even though “quantifying the effect of greenhouse gases in dollar terms is difficult at best,” “[t]he critical importance of the subject” suggests that the agency’s analysis must include investigating “whether this tool, however imprecise it might be, would contribute to a more informed assessment of the impacts than if it were simply ignored.”¹²⁸ Indeed, when agencies propose policies that bear substantially on GHG emissions but omit the SC-GHG, courts often require adequate explanations for that particular omission.¹²⁹

This SC-GHG example shows the power of developing even an imperfect valuation methodology: agencies often must justify not using it when they could have, and many of those justifications do not withstand judicial scrutiny. In any context in which an agency monetizes costs or benefits, courts tend to view omitting that imperfect valuation with heavy skepticism because imperfect estimates are often better than implicit estimates of zero. This same logic favors not being too quick to reject imperfect methods for valuing animals.

Animals’ Numerosity. Another argument against the Strong Claim could echo then-Judge Richard Posner’s argument against judges granting animals rights. His argument is worth quoting at length:

[T]o the extent that courts are outside the normal political processes, [an animal-rights] approach is deeply undemocratic. There are more animals in the United States than people; if the animals are given capacious rights by judges who do not conceive themselves to be representatives of the people—indeed, who use a methodology that owes nothing to popular opinion or democratic preference—the de facto weight of the animal population in the society’s political choices will approach or even exceed that of the human population. Judges will become the virtual representatives of the animals, casting in effect millions of votes to override the democratic choices of the human population.¹³⁰

In other words, judges are not democratically accountable, so giving them a

¹²⁷ *Id.* at 1192.

¹²⁸ *Id.* at 1193.

¹²⁹ See *Sierra Club v. FERC*, 867 F.3d 1357, 1375 (D.C. Cir. 2017) (mandating that, “[o]n remand,” the agency “explain” whether “and why” it continues to maintain its old, unfavorable “position on the Social Cost of Carbon”).

¹³⁰ Richard A. Posner, *Animal Rights: Legal, Philosophical, and Pragmatic Perspectives*, in *ANIMAL RIGHTS: CURRENT DEBATES AND NEW DIRECTIONS* 51, 58 (Cass R. Sunstein & Martha C. Nussbaum eds., 2004)

mandate to privilege animals would override human interests in too many cases.

Of course, administrative agencies are, in important senses, considerably more democratically accountable than at least non-elected judges.¹³¹ But many nevertheless worry about a purported lack of democratic accountability within the administrative state.¹³² Insofar as that critique holds water, then Posner's worry about animals' interests overwhelming humans' without a human-accountable backstop may find a foothold in opposing the Strong Claim.¹³³ Indeed, his argument about animals' numerosity seems difficult to dismiss out of hand; for instance, for every human, the Earth contains an estimated 10 birds, 100,000 fish, 10,100,000,000 arthropods, and 100,000,000,000 nematodes.¹³⁴ Even if just a small fraction of those other animals merit policy consideration, their numerosity threatens to overwhelm human interests.

But this threat need not defeat this Article's arguments for two reasons. First, even if some view them as insufficient, safeguards from democratically accountable actors still pervade the administrative state. In addition to accountability to the President, Congress exercises influence through a variety of means¹³⁵ and can always repeal any unwelcome agency determination by statute¹³⁶ or, in some circumstances, under the Congressional Review Act.¹³⁷ Worries of runaway agencies completely untethered from human interests ought not be overstated. Second, this Article

¹³¹ See, e.g., *Seila Law LLC v. Consumer Fin. Prot. Bureau*, 140 S. Ct. 2183, 2191 (2020) (framing agencies as “weild[ing] executive power on” the President’s “behalf” and therefore properly accountable to the President, a nationally elected figure).

¹³² See, e.g., *id.* at 2198–2200 (discussing two exceptions to agencies’ general accountability to a democratically accountable President); Note, *Deweyan Democracy and the Administrative State*, 125 HARV. L. REV. 580, 581–82 (2011) (arguing that “modern agencies lack” “meaningful accountability to the public” because they are “[l]argely disconnected from their intended beneficiaries” (footnote omitted)).

¹³³ One might put a fine point on the argument by suggesting that animals’ interests swamping humans may even violate the federal Equal Protection Clause—which is, in important respects, designed to be countermajoritarian—at least in spirit, and perhaps even in fact.

¹³⁴ Calculations are based on abundance estimates from Yinon M. Bar-On et al., *The Biomass Distribution on Earth*, 115 PROC. NAT’L ACAC. SCIS. U.S. app. at 89 tbl.S1 (2018).

¹³⁵ See, e.g., U.S. CONST., art. I, § 9, cl. 7 (prohibiting any federal money from “be[ing] drawn from the Treasury,” including to fund agency activities, “but in Consequence of Appropriations made by Law,” meaning by congressional statute); 2 U.S.C. § 190d(a) (enabling congressional oversight of agency activities).

¹³⁶ See, e.g., Note, *The Exemption Process Under the Endangered Species Act: How the “God Squad” Works and Why*, 66 NOTRE DAME L. REV. 825, 848 (1991) (noting that a decision by the Endangered Species Committee regarding the Tellico Dam was met with multiple congressional bills and an ultimately successful appropriations rider mandating a contrary outcome).

¹³⁷ 5 U.S.C. §§ 801–08 (allowing Congress to reject certain rules via a fast-tracked joint-resolution process).

recommends trending conservative when deciding *how* to value animals' interests.¹³⁸ Given that, again, the status quo effectively values those interests at zero, and given that humans have historically demonstrated willingness to sacrifice their own interests in favor of other animals, little reason exists to believe that some conservative middle ground—such as treating animals' welfare as less than commensurate with humans'—so the former does not completely overwhelm the latter¹³⁹—is any more out of step with the people's will than the status quo. Cost-benefit analysis has driven much regulatory for decades without causing many major outcries among voters, so these democratic safeguards have seemingly largely done their jobs. Moreover, agencies are still tethered to their organic statutory authorities, which likely disallow agencies from totally swamping human concerns. All of those safeguards render particular possible *reductio ad absurdum*-style visions—such as a federal ban on hamburgers—extraordinarily unlikely.¹⁴⁰

The Regulatory Status Quo. One might object to the call to value animals' interests by arguing that the government already does. As the *Entergy* case makes clear, some aquatic animals possess measurable—and measured—economic value through humans' ability to catch and use them.¹⁴¹ Analogous regulations in other contexts may account for the so-called “use” benefits of viewing, owning, hunting, or eating affected animals.

However, properly understood, this use-benefit metric does not reflect the animals' interests. Use benefits in the CWIS context include “recreational fishing benefits” and “commercial fishing benefits”¹⁴²—that is, economic benefits *to humans* from fishing these animals. As a simple example, imagine a hypothetical fish that the EPA's proposed CWIS policy would save from impingement or entrainment. Suppose humans would be willing to pay \$*x* to ensure that the fish is available for fishing. Suppose further that the fish would be willing to part with the equivalent of \$*y*—

¹³⁸ See *infra* Part IV.B.2.

¹³⁹ For instance, the federal government may apply an interspecies discount rate to value animals' interests less, even if somewhat arbitrarily, to ensure that they do not completely overwhelm humans' interests. This is analogous to the effect that some forms of temporal discounting have on future generations' interests. See, e.g., Richard L. Revesz & Matthew R. Shahabian, *Climate Change and Future Generations*, 84 S. CAL. L. REV. 1097, 1100 (2011) (arguing that certain approaches to temporal discounting “discount[] the interests of future generations merely because they live in the future”).

¹⁴⁰ Moreover, even if such scenarios *were* likely, their repugnance rests on the premise that they represent absurd or unacceptable outcomes. According to many, they may be far from absurd. See, e.g., SINGER, *supra* note 37, at 159–83 (discussing arguments for widespread vegetarianism and suggestions for implementing that vision).

¹⁴¹ See *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 224 (2009) (reporting “annualized use benefits of \$83 million” from the EPA's proposed regulatory scheme (citing 69 Fed. Reg. 41,567, 41,662 (July 9, 2004))).

¹⁴² ENV'T PROT. AGENCY, *supra* note 4, at C1-3.

ignoring for now how that value is derived—to avoid impingement and entrainment, even if they remained vulnerable to fishing. Thus, the total value to all beings of the policy that would avoid impinging or entraining the fish is $\$(x + y)$, but measuring use benefits only captures $\$x$.¹⁴³ Animals’ interests—that is, the morally relevant considerations that derive from their sentience and subjective awareness¹⁴⁴—therefore do not enter the use-benefit calculation.¹⁴⁵

One might counter that use benefits, or other human-derived benefits, may indirectly capture animals’ interests through a sort of direct correlation: generally, the higher the benefits to animals, the higher the benefits to humans. Thus, the argument goes, policymakers can rely on humans’ benefits as a sort of “close enough” first approximation of valuing animals’ interests. However, two responses cast doubt on this proposition. First, the absolute values of the costs and benefits are what matter in cost-benefit analyses. So omitting benefits (or costs) that accrue to animals reduces the total benefits (or costs), thereby skewing the analysis. Having some human-centric benefits *correlate* with the missing values fails to solve this central issue of undercounting *absolute* values. Second, this proposition is empirically dubious even on its own terms: in the CWIS example, nonzero use benefits applied to only 1.8% of fish,¹⁴⁶ casting doubt on how strongly use benefits correlate with these animals’ interests.

This critique of capturing use benefits alone does not mean to suggest that use benefits are valueless. Of course, human interests matter as well as those of animals.¹⁴⁷ That being said, concluding that humans’ interests trump animals’ in *every* case is surely wrong. Thus, valuing humans’ interests alone is clearly insufficient.

While use benefits alone fall short, their shortcoming illustrates a useful point: this Article does not merely advocate valuing *animals*—that is, assigning *some* positive dollar value when animals are benefited. It advocates valuing *animals’ interests*—that is, assigning a positive dollar value

¹⁴³ This illustration is simplified; presumably, the fish would be willing to part with some other amount to avoid being fished. As discussed *infra* Part VI.A., a fuller analysis should also capture precisely what happens to animals who are saved from some harmful outcome.

¹⁴⁴ See Blattner, *supra* note 42, at 131 (discussing “moral and legal obligations” and “deserve[d] protection[s]” that stem from legal systems “recogniz[ing] that animals are sentient beings who are capable of experiencing pain and suffering”).

¹⁴⁵ The same is true for the other examples of use benefits, which comprise only the value *to humans* of, say, viewing, owning, hunting, or eating other animals.

¹⁴⁶ ENV’T PROT. AGENCY, *supra* note 4, at C2-2.

¹⁴⁷ Of course, counting use benefits implicitly assumes the ethical permissibility of using animals for humans’ benefit, an assumption that many would reject. See, e.g., FRANCIONE & CHARLTON, *supra* note 115 (arguing that humans using animals is almost never ethical). Because settling (or even adequately describing) this debate is beyond this Article’s scope, the Article simply proceeds under this assumption.

specifically to benefits that accrue to *animals themselves*, as through improvements to welfare. To illustrate using the *Entergy* example, Justice Stevens's dissent criticizes the EPA's "failure to monetize the other 98.2% of affected species,"¹⁴⁸ as though assigning *some* value associated with the other 1.8% of animals "took care of" valuing those animals in some binary sense. In fact, as suggested above, in that case, the EPA failed to monetize 100% of affected aquatic animals' interests; that it counted humans' economic interests in 1.8% of animals does not change that fact.

Valuation as Ethical or at Least Prudent. The Weak and Strong Claims may face an additional line of attack from those who accept the case that animals deserve some sort of consideration in decisionmaking processes but who dispute that such consideration should take the form of *valuing* these animals. Perhaps placing finite dollar values on animals' lives and welfare unpalatably commodifies, instrumentalizes, and even trivializes their interests. One might put a fine point on the argument by asking why decisionmakers should value something as sacred as life and wellbeing using the same units that people use to value mere objects.

As a preliminary matter, the Strong Claim holds that agencies should value animals' interests *conditional on* their performing a cost-benefit analysis for a policy that substantially impacts such animals. This critique, in contrast, speaks to *whether* to perform such an analysis in the first place. It is therefore not entirely responsive to the Strong Claim. But, in the interest of a fuller analysis, this Section offers a few brief possible responses. It first argues that valuing animals' interests is, in fact, not as unpalatable and immoral as it may initially seem. It then argues that, even if one does not accept the argument for this valuation's morality, it is still worth doing if only because it is a "necessary evil" given modern policymaking realities.

In the human context, certain facially unpalatable applications of economic valuation may seem less so upon closer scrutiny. For instance, pricing lives is rendered less repugnant when one understands that the standard value-of-a-statistical-life ("VSL") figure comes not from questions of how much a person values her *entire life*. Rather, the figure comes from how much she values "a very small risk of death of [something like] 1/10,000 annually,"¹⁴⁹ which regulators then multiply by the inverse of that risk (in that example, 10,000).¹⁵⁰ As Sunstein puts it, "the claim that VSL is \$9 million is merely a shorthand way of saying that people are willing to pay from \$900 to \$90 to eliminate risks [of death] of 1/10,000 to 1/100,000."¹⁵¹

¹⁴⁸ *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 238 (2009) (Stevens, J., dissenting). Secondarily, he seems to have conflated "species" with "individual animals," likely intending to have referred to the latter.

¹⁴⁹ VISCUSI, *supra* note 23, at 8.

¹⁵⁰ *See id.* at 6.

¹⁵¹ SUNSTEIN, VALUING LIFE, *supra* note 49, at 95.

That understanding of VSL may mollify some who would be uncomfortable with a more literal understanding of “valuing life.”

Moreover, often underlying the claim that animals’ interests should not have finite value is an implicit assumption that an alternative is sensible or even feasible. To put the point starkly, the principal alternatives seem to include (i) assigning infinite value to animals’ lives and wellbeing; (ii) employing some sort of less systematic, more case-by-case approach to coming up with finite values; or (iii) abandoning the whole enterprise of cost-benefit analysis altogether. None of these alternatives is an improvement.

Assigning infinite value to animals’ lives and wellbeing would create unrealistic and unpalatable policy outcomes. The principle is perhaps best illustrated through an example that the majority in *Entergy* raised: “even respondents . . . acknowledge that the [relevant] statute’s language is plainly not so constricted as to require EPA to require industry petitioners to spend billions to save one fish or plankton.”¹⁵² The contrary position borders on absurdity; very likely nobody would advocate reallocating *all* public money currently spent on education, healthcare, roads, defense, social security, housing, and the like to save one fish. One could increase the amount of allocable money by raising taxes, but even assuming that were tractable, tax revenue is limited by a country’s gross domestic product, or the size of the “pie” that the government can “slice” to serve any particular end.¹⁵³ Thus, accepting that some tradeoffs involving animals’ lives and wellbeing are inevitable because of this fixed “pie,”¹⁵⁴ the relevant question becomes not *whether* to make such valuations but *how* to do so. Saying that an analysis does not make such difficult tradeoffs is either immoral, if it unjustifiably sets animals’ implicit values at zero, or disingenuous, if it assigns *some* nonzero implicit value while pretending to avoid such tradeoffs.¹⁵⁵

¹⁵² *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 226 (2009) (internal quotation marks omitted).

¹⁵³ See VISCUSI, *supra* note 23, at 7 (“If the entire gross domestic product of \$17.4 trillion in 2014 were allocated to preventing accident[al] deaths, it would only be possible to spend an average of \$128 million per death to prevent these accidents, leaving nothing left to prevent illnesses or to provide for daily living expenses.”).

¹⁵⁴ One might respond that tradeoffs are inevitable and tolerable only when other lives’ values are implicated; otherwise, no finite value is tolerable. This argument fares no better. One could easily frame just about any spending as implicating some beings’ lives or welfare: spending on education enhances life through better career prospects (and consequent longevity) and richer understandings (and consequently improved quality of life); spending on infrastructure enhances lives through better economic prospects (and consequent longevity), lower accident risk (and consequent decreases in morbidity and mortality), and decreased frustration during commutes (and consequently improved quality of life); and so on. Even if some categories of spending fail to implicate any lives’ values—a facially dubious proposition—the position that *all* such spending must *necessarily* be redirected to improve or save *any* life to *any* degree seems untenable.

¹⁵⁵ See VISCUSI, *supra* note 23, at 10 (“Ultimately, any policy decision will implicitly make

A less absolute position might claim that a *systematic* approach to valuing lives and welfare is untenable because of each life's unique qualities, traits, and capacities. But resulting case-by-case analyses would open the door to arbitrary and inconsistent valuations, violating a widespread ethical intuition against arbitrarily valuing lives differently. Such *ad hoc* analyses also raise the likelihood that any individual decision will pass without appropriate scrutiny of the criteria applied, thereby threatening to omit major considerations. By applying consistent criteria, policymakers would guard against arbitrariness and be forced to consider and list out all applicable criteria transparently for appropriate scrutiny. This maximizes the chances that policy decisions are rational, avoiding both overvaluing individual lives (at the expense of dividing the "pie" among other goods) and undervaluing them.

One could argue that, if that is the only choice under a cost-benefit analysis framework, then the framework itself should be rejected as immoral. This Article rejects that contention for three reasons. First, as argued above, valuing goods like "life" is not immoral but rather helps improve decisions involving the inevitable tradeoffs policymakers must make involving important topics. Second, at least some objections to valuing life may owe to a "crude but quite tenacious moral heuristic" that allowing death is bad, even though people's thoughts on the topic tend to be "not reflective."¹⁵⁶ Crediting such knee-jerk resistance would hinder policymaking, which is, at its best, reflective and thoughtful. Finally, even if valuing lives were somehow immoral, that would not end the inquiry. Perhaps throwing the baby of cost-benefit analysis—a useful and socially beneficial regulatory tool¹⁵⁷—out with the bathwater of uncomfortable calculations would be even more immoral and therefore unwise. Thus, the only sensible policy choice remaining is embracing cost-benefit analysis, placing finite values on all (human and nonhuman) welfare, and doing so rigorously and consistently.

However, even if one rejects that placing finite values on animals' welfare is moral, one might still wish to do so because it is a "necessary evil" given cost-benefit analyses' centrality in contemporary regulatory

such a [tradeoff] even if the benefits are not monetized, so the failure to monetize risks [to life and wellbeing] disguises the hard choices being made but does not avoid the task of setting an implicit value on expected lives saved.").

¹⁵⁶ SUNSTEIN, *supra* note 21, at 147.

¹⁵⁷ See, e.g., *id.* at 36 (noting that, in large part because of President Obama's strong endorsement of cost-benefit analysis, "[i]n the first three fiscal years of the Obama Administration, the net benefits of economically significant regulation exceeded \$91 billion"); RICHARD L. REVESZ & MICHAEL A. LIVERMORE, *RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH* 3 (2008) (arguing that "cost-benefit analysis, properly conducted, can improve environmental and public health policy").

policymaking.¹⁵⁸ As Professor W. Kip Viscusi argues,

[t]he benefit-cost analysis procedure that lies at the heart of regulatory analyses involves a comparison of the benefits and the costs and a judgment that the benefits exceed the costs. To make such a comparison, at some point all effects must be put in comparable units, at least implicitly. . . . Monetization of . . . benefits [to life and wellbeing] puts these effects on the same footing as the cost numbers, making clear that they are just as real economic effects as are regulatory costs.¹⁵⁹

On a less theoretical and more pragmatic level, Viscusi notes that, based on his experience with government regulators in the human-life context, “[i]f [a policy’s] . . . effects [on life and wellbeing] are not monetized, the greater likelihood is that they will be treated as having zero or negligible value, not that they will be viewed as being more consequential than if the [monetized] numbers were not used.”¹⁶⁰ He also warns that “[f]ailing to monetize the effects also limits the ability of benefit-cost analysis to provide a comprehensive index of a policy’s attractiveness.”¹⁶¹ Thus, an objector might be willing to engage in this valuation even if she finds it unpalatable because failing to do so would yield policies that are less sensitive to harms and benefits that accrue to the very animals that she is concerned about in the first place.¹⁶²

IV. CRITERIA FOR VALUING ANIMALS

Establishing that animals’ interests merit valuation fails to explicate exactly what such valuation should entail. This Part aims to outline some criteria for a good methodology for this kind of valuation. Those criteria include accounting for both life and welfare, avoiding undervaluation, and especially avoiding overvaluation by trending conservative. This part also argues that policymakers should hesitate before rejecting estimates that are

¹⁵⁸ See generally SUNSTEIN, *supra* note 21.

¹⁵⁹ VISCUSI, *supra* note 23, at 9.

¹⁶⁰ *Id.* at 10. But see Rachel Bayefsky, Note, *Dignity as a Value in Agency Cost-Benefit Analysis*, 123 YALE L.J. 1732, 1764–71 (2014) (arguing against monetizing dignity in agency cost-benefit analyses).

¹⁶¹ VISCUSI, *supra* note 23, at 10.

¹⁶² If one absolutely insisted against monetizing animals’ interests, Rachel Bayefsky describes a fairly rigorous approach to qualitatively considering an unmonetized good—in her case, dignity—in agency cost-benefit analyses called “qualitative specificity” that may be worth considering in this context. See Bayefsky, *supra* note 160, at 1771–81 (describing and arguing for using qualitative specificity to value dignity in agency cost-benefit analyses).

“tainted” by human biases like speciesism.

A. Analyses Should Value Both Life and Welfare.

The first criterion is perhaps the most basic: a methodology must capture animals’ interests in living a pleasurable life. A “pleasurable life” has at least two components: the length of life and the quality of that life. Thus, a good metric should capture animals’ interest both in living and in avoiding suffering—and enjoying pleasure—during life.

B. Analyses Should Avoid Undervaluation and Overvaluation.

This Section argues against both undervaluation and overvaluation. At the outset, both arguments assume that a “true” or “correct” value of animals’ interests exists. In practice, such a value is likely unattainable. This Section therefore explores whether to err on the side of aggression or on the side of conservativeness in making ultimately imperfect “guesses” or estimates, ultimately endorsing the latter approach.

1. Analyses Should Avoid Undervaluation.

This criterion’s first sub-point is fairly simple and uncontroversial. If policymakers have good reason to suspect that their estimates fail to take into consideration an aspect of animals’ interests, and they have a good way to estimate that aspect, then they should not omit that aspect. Similarly, if good reason exists to suspect that any estimates of some aspect are far too low—e.g., if the estimate violates strong shared intuitions, perhaps if it estimates that a cow values her entire life at only \$0.01—then policymakers can and should take at least modest steps to rectify the estimate.

2. Analyses Should Especially Avoid Overvaluation.

While policymakers should take care to avoid undervaluation where possible, they should take special care to avoid overvaluation. Conservative estimates—i.e., estimates that almost no reasonable person could dispute as representing the *lower-bound* value of animals’ lives—can help accomplish this goal. Conservatism is important for two reasons. First, trending conservative means that all policies either do not change—i.e., policies that are net costly remain net costly, and those that are net beneficial remain net beneficial—or they flip from “net costly” to “net beneficial” or vice versa *correctly*. Here, “correctly” stands for the idea that all policies that do flip should do so because, if a *conservative* estimate is enough to change the

outcome, then the *true* estimate must be as well.¹⁶³ Thus, because policies either stay the same or improve, conservative estimates guarantee a positive expected value (or at least a frozen status quo). The same cannot be said of nonconservative or “aggressive” estimates. Unlike conservative estimates, such estimates may flip some policies *incorrectly*, so they *may* leave behind even worse policies than before, thereby failing to guarantee a positive expected value. Second, more pragmatically, valuing animals is likely a foreign concept to many policymakers, so initial resistance to the idea is likely among some. Trending conservative may help assuage some of their fears and generate acceptance.

Perhaps these worries about overvaluing animals’ lives are overstated because of what Viscusi sees as “systemic undervaluation of life throughout the world” in the human context.¹⁶⁴ In the animal context, however, this worry may be less salient. Thinking about valuing human lives dates back at least half a century,¹⁶⁵ whereas expanding that thinking to animals is relatively new, so researchers have less of a basis on which to worry about systematic undervaluation in the latter context. Moreover, again, policymakers who are new to the novel idea of valuing animals may not be willing to adopt anything but conservative, lower-bound estimates. Thus, embracing such estimates may give the idea more of a foothold in the near term, providing a sturdier foundation for more accurate, fuller estimates in the long term.

C. Policymakers Should Not Reject Biased Estimates out of Hand.

A final consideration involves how to think about using imperfect methodologies that are subject to being “tainted” by biases, especially speciesism. Speciesist biases tend both (i) to privilege humans above nonhuman species and (ii) to privilege certain nonhuman species over others, all without good reason.¹⁶⁶ Whether such biased valuations should receive the imprimatur of legal validation is contestable. This Section argues that policymakers should not be too quick to reject them. In many cases, these biased valuations may be closer to “correct” than the status quo and may even communicate a behavior-shifting antispeciesist message, so are still worth using.

On one view, using speciesism-tainted valuations is *per se* wrong. One legal maxim, especially prevalent in American constitutional law, holds

¹⁶³ Similar logic applies to shifting policy alternatives’ rankings in terms of net benefits.

¹⁶⁴ VISCUSI, *supra* note 23, at 21.

¹⁶⁵ See, e.g., Thomas C. Schelling, *The Life You Save May Be Your Own*, in PROBLEMS IN PUBLIC EXPENDITURE ANALYSIS 127 (Samuel B. Chase ed., 1968) (conceptualizing the idea of valuing statistical lives).

¹⁶⁶ See Caviola & Capraro, *supra* note 38, at 1 (discussing these two forms of speciesism).

that, while “[p]rivate biases may be outside the reach of the law,” “the law cannot, directly or indirectly, give them effect.”¹⁶⁷ In other words, law cannot credit or reflect private biases, even though law also cannot totally remedy them. While less widely discussed and understood than other private biases, reason exists to conclude that speciesism is such a bias, especially given recent psychological findings on the topic.¹⁶⁸ Given those findings, perhaps laws—including those that administrative agencies issue—should not “give [speciesism] effect” by crediting speciesism-tainted valuations.

If one rejects such an absolute prohibition, however, then whether to reject speciesism-derived figures is less clear. Even a committed antispeciesist might observe that such biases pervade society and that attaining a species-neutral ideal is infeasible anytime soon. In the meantime, perhaps using speciesism-tainted figures that undervalue animals is acceptable because, while imperfect, at least they move decisions *closer* to “correct” in the aggregate compared to the status quo. Indeed, one might go further and argue that using speciesism-derived figures is even *good* as long as society remains largely speciesist because doing more might be too much for skeptical policymakers to accept. Part IV.B.2. *supra* makes a similar “acceptability” argument in advocating that valuations trend conservative, at least initially.

One might object to this line of thinking if endorsing and “crediting” speciesist valuations “cements” speciesism and makes antispeciesist progress more difficult. Laws, including regulations, possess communicative power that can alter social and behavioral norms.¹⁶⁹ If regulations tolerate and give effect to speciesism, they may entrench the norm that speciesism is “okay.” While discussions about such large, dynamic social systems and structures are difficult in the abstract—especially within the constraints of a single article—at least mentioning a plausible countervailing effect may assuage that worry. Valuing animals some, even if not “enough” from a nonspeciesist perspective, would still communicate far more about animals having value and worth than laws and regulations did in the past. Thus, this regulatory emphasis would plausibly shift the norm *away* from speciesism, not toward it.

¹⁶⁷ *Palmore v. Sidoti*, 466 U.S. 429, 433 (1984).

¹⁶⁸ See Lucius Caviola, *How We Value Animals: The Psychology of Speciesism* 57 (July 2019) (Ph.D. thesis, University of Oxford) (concluding that “speciesism can be considered a form of prejudice” that “is psychologically related to human-human types of prejudice such as racism, sexism, and homophobia”).

¹⁶⁹ For example, the Food and Drug Administration mandated that cigarette packages display graphic warnings. See *Tobacco Products; Required Warnings for Cigarette Packages and Advertisements*, 85 Fed. Reg. 15,638 (Mar. 18, 2020) (codified at 21 C.F.R. pt. 1141). This regulation plausibly communicates negative information about smoking in a way that could impact related social and behavioral norms.

V. METHODOLOGICAL OPTIONS FOR VALUING ANIMALS

This part explores the “menu” of options that regulators have to value animals in cost-benefit analyses. It also assesses them against the criteria identified above: valuing both life and welfare, avoiding undervaluation, and especially avoiding overvaluation by trending conservative.¹⁷⁰ Metrics that perform especially poorly under these criteria include humans’ willingness to pay and variations on the human-capital approach—though some well-informed human-derived estimates may be viable. Better options include interspecies comparisons and, in the future, direct measurements of animals’ preferences and tradeoffs. This part also discusses how animals’ interests could figure into valuation methods besides cost-benefit analysis and the utility of performing multiple analyses and sensitivity analyses to account for uncertainty. It finally discusses why agencies should, at the bare minimum, conduct a breakeven analysis from animals’ perspective to check whether that triggers any obvious intuitions. To reiterate at the outset, critics who want better methodologies would do well to hold off on dismissing these ones until and if they can show that they are not only *imperfect* but *worse than not quantifying animals’ interests at all*.¹⁷¹

A. Humans’ Willingness to Pay for Animal-Welfare Improvements Usually Falls Short.

Many studies exist that attempt to elicit humans’ willingness to pay (“WTP”) for improvements in animal welfare.¹⁷² These studies do not measure animals’ interests; they calculate humans’ interests in those animals. Perhaps, if humans had no selfish interests in these animals *and* acted perfectly altruistically toward them, these values would be equal, but those are unrealistic expectations. For one thing, humans are rarely, if ever, perfectly altruistic, even to other humans.¹⁷³ Furthermore, both the

¹⁷⁰ See *supra* Part IV.A.–B.

¹⁷¹ See *supra* Part IV.C.

¹⁷² See, e.g., Richard M. Bennett & Ralph J.P. Blaney, *Estimating the Benefits of Farm Animal Welfare Legislation Using the Contingent Valuation Method*, 29 AGRIC. ECON. 85, 86 (2003) (describing methods of a survey that “estimate[s] the benefits of a ban on cages in the EU for citizens of the UK” (emphasis added)).

¹⁷³ One example of humans’ nonaltruistic tendencies comes from the ultimatum game, wherein one participant is told to offer a way of splitting a sum of money (say, \$10) between herself and another participant. The second participant can either accept the offer, in which case the money is split as offered, or reject it, in which case neither participant gets anything. Altruistic outcomes would either involve the first participant offering all or *at least* half of the money to the second participant, or perhaps splitting the money according to who needs it the most (and therefore presumably averaging a 50-50 split). However, in reality, first participants tend to offer less than half of the money. See Richard H. Thaler, *Anomalies: The*

prevalence of speciesist attitudes¹⁷⁴ and humans' general lack of knowledge about animals¹⁷⁵ cast even more doubt on even altruistic humans' general tendencies to be generous toward animals. These factors raise the risk of valuations that are too low and strongly divorced from animals' interests.

These critiques do not suggest that human WTP studies are totally devoid of policy-relevant information. Norwood and Lusk contend otherwise, asserting that, "if we want to conduct non-speciesist[] cost-benefit analysis . . . we do not even need to know how much humans value the policy."¹⁷⁶ In other words, "a *non-speciesist* approach" to cost-benefit analysis should "practically ignore the benefits to humans" of policies that benefit animals.¹⁷⁷

The reasons they give for this strong conclusion, however, are not convincing. They argue that, in cases in which human benefits (i.e., human WTP) are what push a policy benefiting animals from net costly to net beneficial, "the redistribut[ion] test fails, and there is no feasible scheme that allows both [humans] and [nonhumans] to be made better off from the policy."¹⁷⁸ Implicit in this suggestion is that a policy is not worth pursuing unless it benefits all parties, perhaps after some sort of redistribution of benefits, echoing the Kaldor-Hicks efficiency criterion.¹⁷⁹ In general, however, people accept many policies that pass cost-benefit scrutiny even if some benefits are not redistributed to compensate all parties for all net losses. For example, insofar as one is comfortable with social security programs that do not compensate the wealthy for any disproportionate contributions or climate policies that take account of future generations' wellbeing through a low discount rate, little reason exists to single out *this* redistributive policy for rejection.¹⁸⁰

Ultimatum Game, 2 J. ECON. PERSP. 196, 196–98 (1988) (describing outcomes of simple ultimatum games, wherein the average offers leave less than half of the money to the second participant).

¹⁷⁴ See Caviola, *supra* note 168, at 56–57 (concluding "that speciesism is an accurately measurable, stable form of prejudice with high interpersonal differences" that "can predict behavior above and beyond existing constructs of prosociality as well as perceived mental capacities").

¹⁷⁵ See, e.g., Stephen R. Kellert, *American Attitudes Toward and Knowledge of Animals: An Update*, 1 INT'L J. FOR STUD. ANIMAL PROBS. 87, 98 (1980) (concluding that "[t]he American public, as a whole, was characterized by extremely limited knowledge of animals").

¹⁷⁶ NORWOOD & LUSK, *supra* note 55, at 217 (italics omitted).

¹⁷⁷ *Id.*

¹⁷⁸ *Id.* at 216.

¹⁷⁹ See generally J.R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696 (1939); Nicholas Kaldor, *Welfare Propositions of Economics and Inter-Personal Comparisons of Utility*, 49 ECON. J. 549 (1939).

¹⁸⁰ Some may argue that the relevant criterion is instead *potential*, not *actual*, redistribution. But that fails to capture current regulatory practice, which "already routinely deviates from Kaldor-Hicks assumptions, e.g., by using one VSL for individuals of varying incomes rather

Indeed, accounting for at least part of what underlies humans' WTP for benefits to animals is good. Norwood and Lusk helpfully point out that, insofar as a "human's benefits also include the [benefited] animal's benefits," counting those humans' benefits risks "double-count[ing] benefits."¹⁸¹ Their analysis, however, does not distinguish finely enough. They argue that "a person's WTP for an animal welfare policy is directly and inextricably linked to the benefits [an] animal is expected to receive,"¹⁸² as though correlations between animals' and humans' valuations are enough to prove that humans are motivated only by pure altruism toward animals. If this were true, then human valuations would plausibly risk double counting benefits. However, humans may have less altruistic motivations behind some apparently altruistic actions. For example, they may gain enhanced social standing or advantages stemming from better public relations. Plausibly, humans' valuations increase in tandem with animals' in large part because more benefits for the latter provides more benefits for the former. Thus, contrary to these overly absolutist assertions by Norwood and Lusk, humans' valuations of policies that benefits animals should factor into regulatory analyses, at least insofar as they reflect humans' personal satisfaction from the policies. Thus, this Article does not recommend *eliminating* human WTP from consideration, but rather *supplementing* it with analyses that better capture animals' interests.

1. *Ecosystem Services Falls Short.*

A number of human-derived WTP estimates exist across several contexts, and each of them suffers from the same shortcomings. For instance, ecosystem services comprise contributions to human welfare from the environment or ecosystems¹⁸³—including from wild animals.¹⁸⁴ If the wild animals die or become incapacitated, then their "output"—or services to

than income-specific VSL" and does not require compensation when far-future people are harmed. OFF. OF INFO. & REGUL. AFFS., OMB CIRCULAR NO. A-4: EXPLANATION AND RESPONSE TO PUBLIC INPUT 43–44 (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4Explanation.pdf>. Moreover, even if potential redistribution were required, plenty of interventions exist to benefit animals effectively, which could help redistribute to harmed animals or their ilk, albeit not in a typical way akin to writing a check.

¹⁸¹ NORWOOD & LUSK, *supra* note 55, at 215.

¹⁸² *Id.*

¹⁸³ OFF. OF INFO. & REGUL. AFFS., DRAFT FOR PUBLIC REVIEW: GUIDANCE FOR ASSESSING CHANGES IN ENVIRONMENTAL AND ECOSYSTEM SERVICES IN BENEFIT-COST ANALYSIS 1 (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/08/DraftESGuidance.pdf> [hereinafter DRAFT ECOSYSTEM SERVICES GUIDANCE].

¹⁸⁴ See, e.g., *id.* at iii–iv (outlining examples of how regulations' effects on "wildlife or recreation" can affect human welfare).

humans—ends. But again, ecosystem services track *human* WTP for these services, and what *humans* lose when animals' services end. Thus, while ecosystem services comprise some of animals' valuable aspects, they do not adequately capture the interests of those animals themselves.

2. *Human-Derived Value of a Statistical Animal Life Falls Short.*

In the human context, the VSL “has become the norm through the US government and many other countries.”¹⁸⁵ This approach computes how valuable life is to a person by asking how much money that person would need to accept a marginal risk of premature death (or how much she would be willing to pay to avoid that risk). Two general categories of methods exist to elicit such a value: the stated-preference approach and the revealed-preference approach. Both approaches have been extended to animals, at least in limited ways. But both fall short.¹⁸⁶

The stated-preference approach “ask[s respondents] how much they would be willing to pay for a particular risk reduction.”¹⁸⁷ These sorts of surveys are called “contingent-valuation studies.” One central disadvantage of such an approach is that “the hypothetical valuations derived from these surveys may not be reflective of the decisions people would make if actually confronted with a particular risk.”¹⁸⁸ Moreover, because of mental shortcuts humans take, like the availability heuristic and probability neglect, “there are serious problems with relying on contingent valuation studies to produce WTP.”¹⁸⁹ These issues are mitigated to some extent by the “exacting criteria” that stated-preference methods must now meet to correct for these biases,¹⁹⁰ but imperfection seems to be the best that these studies can produce.

This approach has migrated to the animal context. Political scientists in the United States conducted a contingent-valuation study measuring the value of a statistical dog life (“VSDL”) that ultimately “recommend[ed] setting the VSDL to \$10,000.”¹⁹¹ The researchers asked pet owners how much they would be willing to pay for vaccinations that lowered the risk of a hypothetical disease that may cause their dogs suffering or death.¹⁹²

One problem with this approach is its unwieldy demands to perform

¹⁸⁵ *Id.* at 23.

¹⁸⁶ The same general analysis applies, *mutatis mutandis*, to age-disaggregated value-of-a-statistical-animal-life-year estimates.

¹⁸⁷ *Id.* at 31.

¹⁸⁸ *Id.* at 32.

¹⁸⁹ SUNSTEIN, *supra* note 21, at 121.

¹⁹⁰ VISCUSI, *supra* note 23, at 32.

¹⁹¹ Deven Carlson et al., *Monetizing Bowser: A Contingent Valuation of the Statistical Value of Dog Life*, 11 J. BENEFIT-COST ANALYSIS 131, 146 (2019).

¹⁹² *Id.* at 134–37 (describing the study).

a separate study for every possible species, or at least group of species, that regulations might affect.¹⁹³ (One shortcut to overcome this challenge could involve interspecies comparisons, such as adjusting the VSDL by some factor to account for differences between dogs and other species. This Article discusses such an approach *infra* Part V.D.) Another problem is that, as the authors observe, “the VSDL is based on the willingness-to-pay of dog keepers—as opposed to the dogs themselves.”¹⁹⁴ Whether this disconnect results in overvaluation¹⁹⁵ or undervaluation¹⁹⁶ of a dog’s own WTP to avoid risk is not immediately obvious. But the fundamental issue is that the figure does not truly reflect a dog’s WTP to avoid death and suffering; it reflects humans’ WTP therefor, or perhaps, at most, lay humans’ best estimates of the dog’s WTP.¹⁹⁷ While humans may have answered that study’s questions while thinking about their dogs’ WTP, that is unlikely. And, even if it were likely, humans’ poor knowledge about what being a dog is like limits their answers’ usefulness.

The other main approach to estimating VSL is the revealed-preference approach. Some of the most common such studies involve “isolate[ing] the amount of extra pay that workers in dangerous jobs receive compared to what they would have received had they been employed in safer positions.”¹⁹⁸ This so-called “wage premium” represents the extra amount the worker had to be paid to take the job, which, under certain economic assumptions, equals how much the worker would pay to *avoid* the risk. Other revealed-preference studies involve data from outside the labor market. For example,

[s]uppose that a ski helmet reduces a skier’s risk of death by 1/50,000, costs \$200, and has no other positive or negative attributes. . . . [C]onsumers who purchase the helmet have revealed a VSL of at least \$10 million (i.e., \$200 divided by 1/50,000), and those who don’t purchase it reveal a VSL of less than \$10 million.¹⁹⁹

Because the revealed-preference approach solves the problem of hypothetical scenarios in which participants have no “skin in the game,” some guidance

¹⁹³ See *id.* at 146 (“[O]f course, we are sure cat keepers would be interested in the VSCL!”).

¹⁹⁴ *Id.*

¹⁹⁵ For example, perhaps dog owners are irrationally enamored with their dogs.

¹⁹⁶ For example, perhaps no human can understand just what being a dog is like and how much a dog wants to live.

¹⁹⁷ A theoretical difficulty with this approach entails disentangling which of these two possible interpretations better reflects what respondents had in mind when answering.

¹⁹⁸ VISCUSI, *supra* note 23, at 25.

¹⁹⁹ *Id.* at 29–30.

endorses using them over stated-preference studies.²⁰⁰

As with stated-preference VSL studies, scholars have extended revealed-preference VSL studies to the animal context. Norwood and Lusk conducted a secret-price auction, the winner of which, whose bid must be *over* the secret price, would pay his or her bid to buy one of five types of egg cartons or one of five types of pork chops, where these types varied in terms of the producing animals' welfare.²⁰¹ The mechanism of a randomly generated secret price and the "winner" needing to submit a bid *over* that price was "designed such that individuals would submit a bid [sic] equal to their maximum WTP."²⁰² The authors found average price premiums for higher-welfare eggs between 51% and 141% (median premiums between 23% and 85%),²⁰³ and they found average price premiums for higher-welfare pork between 16% and 112% (median premiums between 3% and 80%).²⁰⁴

The same authors also conducted a similar auction in which they gave participants \$65 to \$85 and elicited participants' maximum WTP to move 1, 100, or 1000 chickens or sows from a "low-welfare" farm to a "high-welfare" farm.²⁰⁵ Three aspects of the results stand out. First, mean per-animal WTP diminished substantially upon scaling from 1 to 100 to 1000 animals,²⁰⁶ suggesting some degree of irrationality in people's answers, perhaps from lurking "compassion fade"²⁰⁷ or "scope neglect."²⁰⁸ Second, mean WTP uniformly exceeded median WTP, often by an order of magnitude, suggesting a strong "long-tail" effect in which most participants revealed fairly low

²⁰⁰ See OFF. OF MGMT. & BUDGET, CIRCULAR A-4: REGULATORY ANALYSIS 24 (2003), <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf> [hereinafter PRIOR CIRCULAR A-4] ("Other things equal, [agencies] should prefer revealed preference data over stated preference data because revealed preference data are based on actual decisions, where market participants enjoy or suffer the consequences of their decisions. This is not generally the case for respondents in stated preference surveys . . .").

²⁰¹ See NORWOOD & LUSK, *supra* note 55, at 276–79 (describing the auction and its rationale).

²⁰² *Id.* at 276.

²⁰³ *Id.* at 284 tbl.9.2.

²⁰⁴ *Id.* at 290 tbl.9.3.

²⁰⁵ See *id.* at 295–97 (describing the second auction).

²⁰⁶ See *id.* at 298 tbl.9.4 (reporting that average WTP per hen falls from \$0.98 to \$0.15 to \$0.06 as the number of hens moved increases from 1 to 100 to 1000, and that average WTP per sow falls from \$2.85 to \$0.08 to \$0.02 as the number of sows moved increases from 1 to 100 to 1000).

²⁰⁷ See, e.g., Daniel Västfjäll et al., *Compassion Fade: Affect and Charity Are Greatest for a Single Child in Need*, 9 PLOS ONE, June 18, 2014, at 1, 7 (concluding "that affective feelings about charitable causes were strongest for a single endangered person and began to decline as the number in danger grew larger").

²⁰⁸ See, e.g., Stephan Dickert et al., *Scope Insensitivity: The Limits of Intuitive Valuation of Human Lives in Public Policy*, 5 J. APPLIED RSCH. MEMORY & COGNITION 248, 253 (2015) (concluding that, in the context of valuing others' lives, "intuitive valuations can lead to scope insensitivity, which represents a deviation from normative valuations").

WTPs, but a few outlier individuals demonstrated exceptionally high WTPs.²⁰⁹ As the authors observe, between the median and mean values, the question of “[w]hich measure is a better indicator of the public good value of farm animal welfare . . . is a question with no definitive answer,”²¹⁰ creating difficulties in interpreting these results for use in policy decisions. Third, approximately a third of participants bid zero for each potential welfare improvement,²¹¹ which exacerbates the variability in the results. How to translate such indifference into actionable policy is not immediately clear. Perhaps at least some share of this indifference owes to the lack of knowledge about and negative attitudes toward other animals that humans often harbor, as discussed above.²¹² Without more information about what underlay these responses, further conclusions are difficult. Finally, the fact that participants were given \$65 or \$85 likely influenced responses; they would have likely differed had participants been given, say, \$5 or \$1000 instead.

Another revealed-preference study comes from Wayne Hsiung and Sunstein, who estimate losses related to climate change’s impact on animals’ nonuse value by “us[ing] data on current [Endangered Species Act] expenditures to protect threatened animals.”²¹³ The authors take these figures as “a (minimum) revealed preference for species loss more generally.”²¹⁴ They calculate an “estimate of the total cost of climate change in terms of species loss, including both use and nonuse values,” of “\$162 to \$399 billion, or 1.4% to 3.5% of GDP, using the revealed preference method.”²¹⁵ They note that “[t]he range variance is driven by uncertainty in the global temperature projections,” so “we can move from the high end of these cost estimates to the low end, if climate change is mitigated.”²¹⁶

Notably, this study has attracted intense criticism, with one critic panning this result as “a number [not] to be taken seriously” because it is purportedly “based upon a methodology that reflects fundamental errors and misconceptions about economics, a partial and misleading selection from the biological literature on climate change and species loss, and deep confusion over the distinction between government spending and private values.”²¹⁷

²⁰⁹ See NORWOOD & LUSK, *supra* note 55, at 298 tbl.9.4 (reporting mean and median WTPs for moving 1, 100, or 1000 animals that differ by factors between 2 and 29).

²¹⁰ *Id.* at 299.

²¹¹ See *id.* at 298 tbl.9.4 (reporting between 29% and 40% of participants bidding zero for different versions of the auction).

²¹² For a discussion on why “taints” from biases like speciesism should not be treated as fatal, see *supra* Part IV.C.

²¹³ Wayne Hsiung & Cass R. Sunstein, *Climate Change and Animals*, 155 U. PA. L. REV. 1695, 1729 (2007).

²¹⁴ *Id.* at 1731.

²¹⁵ *Id.* at 1734.

²¹⁶ *Id.*

²¹⁷ Jason Scott Johnston, *Desperately Seeking Numbers: Global Warming, Species Loss, and*

Centrally, policy outcomes come from “a lobbying influence game, rather than market choice,” so often that using them as barometers for private valuation seem problematic.²¹⁸ Perhaps such concerns would be alleviated somewhat if the policy resulted from referenda or ballot initiatives in which voters directly participated,²¹⁹ although that would still demand a high degree of consumer information in order to be probative of WTP.²²⁰ Additionally, how to translate their study, which values losing *entire species*, to the kinds of policy questions this Article discusses, involving valuing outcomes for *individual animals*, is unclear. These issues cast doubt on how readily tractable and useful such a metric would be among policymakers for the kinds of valuation goals this Article advocates.

As with the stated-preference study, one other central shortcoming of these revealed-preference studies surrounds the lack of integrating the impacted animals’ WTPs for welfare gains in the calculations.²²¹ Humans, not the impacted animals, revealed their WTP. Thus, these studies also may fare poorly in capturing animals’ interests.

3. *Human-Derived Valuations Could Be Viable Under Limited Conditions.*

As noted above, human-derived valuations generally fall short because people do not act altruistically, exhibit biases like speciesism, and generally know little about animals.²²² In principle, these obstacles could be overcome with deliberate interventions before the valuation. For instance, before asking for a valuation, a carefully designed study could clearly explain that the relevant task is to try and capture animals’ own interests, urge commensurate consideration of welfare regardless of species, and provide a great deal of information about what it is like to be an animal experiencing the benefit or cost being valued (perhaps limiting participation to animal-welfare experts to maximize understanding). The cognitive burdens of such a study would likely be high, and even well-intentioned humans’ ability to implement such instructions faithfully and accurately is at least questionable.

the Use and Abuse of Quantification in Climate Change Policy Analysis, 155 U. PA. L. REV. 1901, 1902 (2007).

²¹⁸ *Id.* at 1909.

²¹⁹ See, e.g., CAL. HEALTH & SAFETY CODE §§ 25,990–25,994 (Deering 2018) (amended by voters in 2018 through Proposition 12 to bar selling certain products in California from animals who were confined in certain inhumane conditions, such as very small crates).

²²⁰ See NORWOOD & LUSK, *supra* note 55, at 265 (concluding that “[c]onsumers’ lack of information about farm animal welfare makes it difficult for them to express their preferences for eggs, pork, beef, and milk produced under alternative farm conditions”).

²²¹ Of course, this observation again assumes—very plausibly—that humans’ responses were not driven by perfect altruism toward the impacted animals.

²²² See *supra* notes 173–175 and accompanying text.

But, in principle, human-derived valuations could be viable under these limited circumstances.

B. Interspecies Comparisons May Be Viable.

Interspecies comparisons could help overcome the difficulty in generating species-specific valuations.²²³ If a reasonable valuation exists for members of one species, and there is reason to expect that member of another species would value the same effect similarly (after accounting for differences between their species), then that value could be translated between the species. This method would involve interspecies adjustments through conversion factors, or factors by which one could multiply a valuation for one species to generate the equivalent valuation for a different species.²²⁴

Because valuations exist for humans for a range of effects, interspecies comparisons would overcome the initial difficulty in generating valuations for nonhuman species. (At present, humans would have to be the baseline species as reliable valuations exist only for them.) These comparisons would also help mitigate the difficulty in generating values for the many species that exist.

One immediate question is how to derive the interspecies comparison factors. One basic but likely overly simple metric might be the average number of neurons per species member as a proxy for greater or lesser ability to experience morally relevant sensations like pleasure and pain (both broadly defined). Professor Daniel C. Dennett argues that degrees of consciousness exist even in humans, so they very likely exist among animals.²²⁵ Proxies for this phenomenon that are better than the number of neurons, if available, could help inform this debate, though none is obviously available yet.²²⁶

²²³ To clarify, this Section sometimes uses the word “species” in its colloquial sense, as opposed to its biological one, sometimes using the word to refer to entire categories of biological species (e.g., snakes or monkeys).

²²⁴ For example, say policymakers value a harm to a member of Species *x* at (arbitrarily) \$1000, and the conversion factor between Species *x* and *y* is (again arbitrarily) 1.25. Policymakers would then value that same harm to a member of Species *y* at \$1000 * 1.25 = \$1250.

²²⁵ See Daniel C. Dennett, *Animal Consciousness: What Matters and Why*, 62 Soc. Res. 691, 706 (1995) (“Consciousness, I claim, even in the case we understand best—our own—is not an all-or-nothing, on-or-off phenomenon. If this is right, then consciousness is not the sort of phenomenon it is assumed to be by most of the participants in the debates over animal conscious.”).

²²⁶ See Jonathan Birch, Commentary, *Degrees of Sentience?*, 21 ANIMAL SENTIENCE 1, 2 (2018) (noting that “[t]here is currently no” “framework for thinking about degrees of sentience”). While initial work “outline[s] a theoretical approach to improving interspecies welfare comparisons using an empirical methodology,” Leigh P. Gaffney et al., *A Theoretical*

Analysts should, of course, also account for other relevant differences pertinent to the effect being valued, such as different species' different life expectancies when valuing mortality risks.

Translating values between species raises several risks that policymakers should keep in mind. First, these translations would amplify any problems inherent in the baseline valuation. For example, if policymakers select the human VSL as a baseline and adjust from there, any sources of error that underlie the VSL would permeate all resulting estimates. Moreover, comparisons between humans and nonhumans raise the ethically fraught risk of “expressive harms”: if not presented carefully, one could interpret comparisons between humans and animals as suggesting that some humans—say, those with a WTP for some value that is similar to animals' WTP—have the same status as “mere” animals. Even if that is not the policymaker's intent, many may still find the comparison unpalatable. Government agencies would do well to present their methodologies carefully to avoid such risks.

One article has undertaken a sort of interspecies comparison to integrate animals' interests into a SWF framework: Espinosa computes a multi-species welfare index that he translates to equivalents of quality-adjusted life years (“QALYs”), a metric used to report morbidity and mortality effects in comparable terms.²²⁷ This index, which he calls the Five-Freedom Fulfillment Index (“5FFI”), measures the degree to which an animal has suffered limits to five internationally recognized freedoms.²²⁸ He treats a year without any abridged freedoms as analogous to one QALY, which represents one year without disease, and one year with all freedoms severely violated as equivalent to 0 QALYs, which is equivalent to death.²²⁹ Armed with these QALY-equivalent estimates, he multiplies by an estimate of WTP for one QALY,²³⁰ and he adjusts by both utility potentials²³¹ and, possibly, a sort of pure interspecies discount rate—or, as he puts it, measure of “speciesism.”²³² This method produces monetized measures of impacts on

Approach to Improving Interspecies Welfare Comparisons, 3 FRONTIERS IN ANIMAL SCI., at 3 (2023), this work is in nascent stages.

²²⁷ Espinosa, *supra* note 57, at 8–11.

²²⁸ *See id.* at 8–9; World Org. for Animal Health, *Animal Welfare*, in 1 TERRESTRIAL ANIMAL HEALTH CODE 333, 333 (31st ed., 2023) (listing as a “[g]uiding principle[] for animal welfare” “[t]hat the internationally recognised five freedoms . . . provide valuable guidance in animal welfare” (italics omitted)). These freedoms include “freedom from hunger, thirst and malnutrition; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from pain, injury and disease; and freedom to express normal patterns of behaviour.” World Org. for Animal Health, *supra*, at 333 (italics omitted).

²²⁹ *See* Espinosa, *supra* note 57, at 10–11. Espinosa also allows for “very severe violations” of these freedoms, which can produce outcomes worse than death. *Id.*

²³⁰ *See id.* at 26 & n.28 (using “a conservative [WTP] value of 147,000 Euros” per QALY).

²³¹ *See id.* at 11–15.

²³² *Id.* at 15 (italics omitted).

animals that can sit alongside humans' interests in an apples-to-apples cost-benefit analysis.²³³

This approach represents an important step toward actualizing the vision outlined in this Article. Indeed, it represents the most complete interspecies cost-benefit approach to date. Still, some updates could help it translate more naturally to the context of American regulatory analyses. First, as Espinosa acknowledges, the 5FFI approximates welfare imperfectly.²³⁴ Any limitations inherent in using these freedoms as a welfare measure—for instance, omitting some relevant welfare effects,²³⁵ double-counting others,²³⁶ or scaling nonlinearly (or even irregularly) with welfare²³⁷—infect the whole index.

Second, the basis for equating the 5FFI, which measures whether certain freedoms are met, and QALYs, which measures diseases' presence and badness, is unclear. Even after adjusting for utility potential, animals' welfare when they avoid certain freedom violations may change more or less than humans' welfare when they avoid disease. These two different domains may indeed converge, but they may not.

Third, and perhaps most fundamentally, U.S. regulatory analysts often question the premise that WTP per QALY is a meaningful metric. Perhaps the clearest guidance on the topic comes from EPA, whose guidelines conclude simply that QALYs “are generally not consistent with willingness-to-pay measure and benefit-cost analysis.”²³⁸ The Department of Health and Human Services (“HHS”) is somewhat more permissive, allowing analysts to estimate WTP per QALY, but only when alternative valuations are unattainable.²³⁹ The most recent version of Circular A-4 takes a similar

²³³ See *id.* at 23–28 (applying this approach to a range of policies).

²³⁴ See *id.* at 28–29 (discussing the 5FFI's limitations).

²³⁵ For instance, the index “do[es] not consider positive experiences that could increase welfare and only focus[es] on negative experiences.” *Id.* at 28 (citation omitted).

²³⁶ For instance, not eating for too long and having a stomachache may cause hunger, distress, physical discomfort, and pain, which touches on four of the five freedoms. See *supra* note 228. The fact that multiple categories capture the same sensation, in itself, is a weak reason to conclude that the sensation is worse.

²³⁷ For instance, under Espinosa's approach, “[i]t is currently assumed that going from a mild to a moderate violation has the same impact as going from a moderate to a severe violation. [He] also assume[s] that the violations of all freedoms are equally important. This might not be true” Espinosa, *supra* note 57, at 28.

²³⁸ ENV'T PROT. AGENCY, GUIDELINES FOR PREPARING ECONOMIC ANALYSES, at 10-8 (2014), <https://www.epa.gov/sites/default/files/2017-08/documents/ee-0568-50.pdf> (citing INST. OF MED., VALUING HEALTH FOR REGULATORY COST-EFFECTIVENESS ANALYSIS (Wilhelmine Miller et al. eds., 2006)).

²³⁹ DEP'T OF HEALTH & HUM SERVS., GUIDELINES FOR REGULATORY IMPACT ANALYSIS 18 (2016), https://aspe.hhs.gov/sites/default/files/migrated_legacy_files/171981/HHS_RIAGuidance.pdf.

approach, warning that QALYs “must meet some restrictive assumptions to represent a valid measure of individual preferences”²⁴⁰ and urging analysts “to acknowledge [their] assumptions and the limitations of [their] estimates” when estimating WTP per QALY.²⁴¹ In sum, the U.S. regulatory guidance treats WTP per QALY—and, by extension, any valuations based on such—as somewhere between disfavored and disallowed.

While fully exploring this complicated topic is beyond this Article’s scope, good reasons exist to disfavor using WTP per QALY. For instance, some QALY gains improve welfare more than others; assuming otherwise is sometimes derisively termed the “QALY is a QALY is a QALY” assumption.²⁴² Professor James K. Hammitt documents that QALYs and WTP rely on different premises and assumptions.²⁴³ And another group of researchers “cast quite serious doubt of the possibility of obtaining” WTP per QALY.²⁴⁴ So WTP per QALY, and methods built on top of it, is not likely to gain much traction.

Of course, this general incompatibility between Espinosa’s approach and American regulatory analyses should not be taken to diminish the approach’s importance. For one, it may be usable in non-American settings that embrace WTP per QALY more warmly.²⁴⁵ And, even in the United States, future work would do well to build on and tweak Espinosa’s elaborate and thoughtful framework, as it operationalizes many of the recommendations in this Subsection. The narrow point in outlining these issues is to show that further work is still needed to fully implement this Article’s proposal.

C. Directly Measuring Animals’ Preferences May Be Viable in the Future.

²⁴⁰ OFF. OF MGMT. & BUDGET, CIRCULAR A-4: REGULATORY ANALYSIS 49 (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf> [hereinafter UPDATED CIRCULAR A-4] (citing Joseph S. Pliskin et al., *Utility Functions for Life Years and Health Status*, 28 OPERATIONS RSCH. 206 (1980)).

²⁴¹ *Id.*

²⁴² See Milton C. Weinstein, *A QALY Is a QALY Is a QALY – Or Is It?*, 7 J. HEALTH ECON. 289, 289–90 (documenting why such an assumption is empirically suspect).

²⁴³ James K. Hammitt, *QALYs Versus WTP*, 22 RISK ANALYSIS 985 (2002).

²⁴⁴ Jose Luis Pinto-Prades et al., *Trying to Estimate a Monetary Value for the QALY*, 28 J. HEALTH ECON. 553, 559 (2009). *But see* Mangus Johannesson & David Meltzer, *Some Reflections on Cost-Effectiveness Analysis*, 7 HEALTH ECON. 1, 4 (1998) (theoretically defending WTP per QALY).

²⁴⁵ See, e.g., HM TREASURY, THE GREEN BOOK: CENTRAL GOVERNMENT GUIDANCE ON APPRAISAL AND EVALUATION 87 (2022), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063330/Green_Book_2022.pdf (noting a “current monetary WTP value for a QALY [of] s £70,000 in [20]20/21 prices” in the United Kingdom).

While likely too nascent an idea to be viable now, future analyses could measure animals' preferences directly. More specifically, researchers could design revealed-preference studies that capture animals' willingness to forego some valuable resource—say, some amount of feed—to gain some other valuable resource—say, a cage with more enrichment.²⁴⁶ While researchers concluded decades ago that then-existing methods along these lines have shortcomings that “can give misleading pictures of animal priorities,”²⁴⁷ and while no much-improved studies since then are apparent, this general idea may provide a viable path forward, circumventing the need for “second-best” estimates based on interspecies comparisons.

Of course, because cost-benefit analyses operate using a monetary scale, units reflecting animals' preferences would need to be monetized, providing a theoretical obstacle. To overcome this obstacle, analysts could ascertain what *percentage* of a resource—say, feed—an animal is willing to forego for some outcome. Analysts could treat that resource as that animal's consumption. Then analysts could translate that percentage into monetary terms by multiplying it by a group of humans' (say, Americans') average consumption and the interspecies conversion factor discussed above.²⁴⁸

D. Analyses Besides Cost-Benefit Analysis Could Include Animals' Interests.

The foregoing analyses have focused on how to value animals in cost-benefit analyses. However, other decisionmaking methodologies have emerged and gained some traction among at least academics, and in some cases policymakers as well. These methods include cost-effectiveness analyses (“CEAs”) and social-welfare functions (“SWFs”). While these methods are not as central to American policymaking as cost-benefit analysis,²⁴⁹ insofar as policymakers are or become interested in them, this Section explores how each can capture animals' interests.

²⁴⁶ I thank Jacob Peacock and an anonymous commenter for the general thoughts in this paragraph, though I hasten to note that they should not be held responsible for any misstatements or fallacies that I have overlooked here.

²⁴⁷ Georgia Mason et al., *A Demanding Task: Using Economic Techniques to Assess Animal Priorities*, 55 ANIMAL BEHAV. 1071, 1074 (1998).

²⁴⁸ Norwood and Lusk suggest an alternative method of monetization: multiplying the amount of the resource the animal is willing to forego by the price humans pay for it. See NORWOOD & LUSK, *supra* note 55, at 218. However, this method would be inferior to the one this Article suggests because the (human) price of resources like animal feed bears little if any relationship to how much animals value the resources, yet that price still would determine animals' WTP. Using average consumption as a benchmark is more related to a standard quality of life.

²⁴⁹ See generally SUNSTEIN, *supra* note 21.

1. *Cost-Effectiveness Analyses Could Capture Animals' Interests.*

In the human context, one common approach to valuing health gains involves rejecting cost-benefit analyses altogether in favor of CEAs, or perhaps conducting both analyses. The latter analyses compute how much saving life-years (“LYs”), QALYs, or similar metrics costs and reporting the result as a ratio of cost per LY or QALY (or other metric) saved. LYs simply measure the number of life years lived, regardless of their quality, while QALYs adjust those years by some measure of their quality such that a year in imperfect health yields less than one QALY. Armed with cost-effectiveness estimates, policymakers can implement interventions that can save a LY or QALY cheaply while deprioritizing or rejecting those that cost too much per LY or QALY. One way to identify sufficiently cost-effective policies is to set a numerical cost-effectiveness threshold (say, \$30,000 per QALY), approving all interventions with cost-effectiveness estimates falling below the threshold and rejecting all above it, absent compelling external reasons to do otherwise.²⁵⁰ Or policymakers could use CEA to prioritize interventions: implementing the one with the lowest cost per LY or QALY first, the second lowest second, and so on, until some budget is exhausted.

LYs, QALYs, and similar metrics carry important limitations. Subsection B above discusses some.²⁵¹ Moreover, QALYs apply only to health interventions and do not obviously enable comparisons between health and nonhealth interventions.

That being said, the CEA’s basic structure need not be limited to health interventions, even if that is its typical domain; policymakers could equally validly calculate the cost per some other outcome. And even where analysts use LYs or QALYs in CEAs, recent studies have begun to develop analogous metrics for animals.²⁵² One might object that these novel metrics

²⁵⁰ For example, the U.K.’s National Institute for Health and Clinical Excellence uses a cost-effectiveness threshold range between £20,000 and £30,000 for its health policy decisionmaking. Christopher McCabe et al., *The NICE Cost-Effectiveness Threshold: What It Is and What That Means*, 26 PHARMACOECONOMICS 733, 734 (2008).

²⁵¹ See *supra* notes 242–244 and accompanying text.

²⁵² See Kendy Tzu-Yun Teng et al., *Welfare-Adjusted Life Years (WALY): A Novel Metric of Animal Welfare that Combines the Impacts of Impaired Welfare and Abbreviated Lifespan*, 13 PLOS ONE, Sept. 12, 2018, at 1, 3 (describing the welfare-adjusted life years, or WALYs, as “a new framework to quantify the total impact of a particular cause (an event or condition), such as a disease or a practice to animals, by combining the duration of impaired welfare and the potential life lost due to premature death caused by the same cause”); Scott T. Weathers et al., *Quantifying the Valuation of Animal Welfare Among Americans*, J. AGRIC. & ENVTL. ETHICS, Mar. 9, 2020, at 1, 2 (describing the species-adjusted measure of suffering years, or SAMYs, as “a modified [disability-adjusted life year, analogous to QALYs] approach to quantify Americans’ preferences regarding animal suffering for different species . . . and

are not yet sufficiently developed to implement in policymaking decisions. However, if these metrics would make decisions *better* or *more likely correct*, even if decisions are still imperfect, then they are still worth using.²⁵³ Moreover, rather than rejecting the metrics outright, policymakers who feel that way can and should work on addressing whatever imperfections exist so that they are usable in the future.

2. *Social-Welfare Functions Could Capture Animals' Interests.*

The SWF represents an emerging alternative or supplement to cost-benefit analyses.²⁵⁴ SWFs are similar to cost-benefit analyses in that both quantify actions' consequences—particularly on welfare—and consider multidimensional aspects of those consequences, such as health, longevity, leisure, and psychological states.²⁵⁵ Notwithstanding those similarities, however, they have one “key difference”: “the *scale* used to quantify well-being effects.”²⁵⁶ Whereas “[t]he SWF framework uses an interpersonally comparable measure” of a person's actual, subjective wellbeing, “CBA quantifies well-being effects on a *monetary* scale.”²⁵⁷ While Adler, a leading SWF advocate, notes that “[c]ost benefit analysis is now the dominant policy-analysis methodology in governmental practice,”²⁵⁸ he argues that the SWF “can be deployed to assess any type of policy choice that a governmental decision-maker might find herself facing, be it a policy choice regarding the tax system or infrastructure, risk regulation, climate change, education, antitrust, health care, consumer protection, the regulation of financial services, and so on.”²⁵⁹ He pointedly contends that the SWF “improves upon [cost-benefit analysis].”²⁶⁰

Insofar as policymakers increasingly join Adler's views on SWFs' superiority,²⁶¹ integrating animals' interests into them should be feasible. He notes that one objection to SWFs involves its lack of application to sentient

farming practices”).

²⁵³ See *supra* Part III.B.2.

²⁵⁴ See ADLER, *supra* note 28, at 4 (noting that the SWF “is now widely used by academic economists in various specific fields” and that it “has not, yet, permeated the actual workings of government—although it could”).

²⁵⁵ See *id.* at 31–32 (discussing such similarities).

²⁵⁶ *Id.* at 32.

²⁵⁷ *Id.*

²⁵⁸ *Id.* at 30.

²⁵⁹ *Id.* at 161.

²⁶⁰ *Id.* at 5.

²⁶¹ See UPDATED CIRCULAR A-4, *supra* note 240, at 65–67 (allowing, in some cases, for agency analysts to use weights that account for the diminishing marginal utility of goods, suggesting a utilitarian SWF).

animals²⁶²—or, for that matter, any so-called “welfare subjects” besides human persons.²⁶³ Of course, that objection, while “cogent,”²⁶⁴ applies to SWFs *as implemented*, not *in principle*. In response to this limitation, one could “either expand the SWF framework itself to include non-human-person welfare subjects, or leave the framework unaltered but arrive at the ethical ranking of outcomes and choices by (somehow) combining the SWF-based ranking with information about the interests of non-human-person welfare subjects.”²⁶⁵ The former option seems more feasible and more attractive; as the parenthetical “(somehow)” suggests, the latter option is underspecified and difficult to do rigorously. Indeed, efforts rigorously to incorporate animals’ interests into social-welfare frameworks are underway,²⁶⁶ including by Adler.²⁶⁷ Using interspecies comparisons, as suggested *supra* Section V.B., could bridge much of the gap. If and when such efforts bear fruit, policymakers interested in SWFs should adopt resulting best practices.

E. Breakeven Analyses Are Often Merited.

The last methodological option, breakeven analysis, is the simplest. It provides a path forward when policymakers know a proposed regulation’s costs but cannot quantify all, or even any, of its benefits.²⁶⁸ The approach proceeds by asking, “What would the benefits have to be, in order to justify the costs?”²⁶⁹ In other words, if policymakers know the costs, then they necessarily know how much the benefits would need to be in order to exceed them.

As Sunstein notes, “breakeven analysis is most helpful when agencies

²⁶² See ADLER, *supra* note 28, at 28 (describing this objection).

²⁶³ See *id.* (“A being is a ‘welfare subject’ if it is sensible to speak of the welfare of that being—if we can coherently ask whether the being is better off in one outcome than in a second. Rocks and bacteria aren’t welfare subjects, but non-human mammals (at least) clearly are.”).

²⁶⁴ *Id.*

²⁶⁵ *Id.* at 28–29.

²⁶⁶ See *Animals and Social Welfare*, DUKE CTR. FOR L. ECON. & PUB. POL’Y, <https://web.law.duke.edu/laweconomicsandpublicpolicy/conferences/animalwelfare/> (last visited Apr. 5, 2020) (describing a conference that took place in November 2019 that focused on “how animal well-being should be incorporated into the normative frameworks of welfare economics,” including SWFs); Espinosa, *supra* note 57.

²⁶⁷ See *Animals and Social Welfare Participant List*, DUKE CTR. FOR L. ECON. & PUB. POL’Y, <https://web.law.duke.edu/laweconomicsandpublicpolicy/conferences/animalwelfare/speakers/> (last visited Apr. 5, 2020) (listing Adler as a participant in the “Animals and Social Welfare” conference).

²⁶⁸ See SUNSTEIN, *supra* note 21, at 65 (“The problem [that breakeven analysis addresses] is that the benefits of regulations are sometimes nonquantifiable (in the sense that agencies lack information that would make quantification possible).”).

²⁶⁹ *Id.* (italics omitted).

are able to identify either a lower or upper bound for regulatory benefits, with point estimates or with estimates of expected value.”²⁷⁰ That way, “agencies are faced with only partial nonquantifiability”²⁷¹: only the difference between the lower-bound value and the “true” value remains unquantified. Even minimal benchmark valuations for lives or years of life lost and for nonfatal suffering could serve as viable lower-bound estimates.²⁷²

Even if estimating a policy’s precise impact on years of life or wellbeing is empirically difficult for some reason, sometimes a breakeven analysis could trigger some sort of ethical or policy-based intuition. For example, suppose that a regulator knows that some policy will cost \$1 million and that it will positively impact at least 100 million pigs substantially, though she is not sure how to value those impacts. She could still reasonably conclude that the policy is cost-benefit justified because each positive impact would only need to be worth one penny for benefits to equal costs, and surely pigs matter at least that much. Of course, that leaves a wide grey area where people have no strong intuitions—which makes developing more rigorous and complete approaches critical—but at least checking for such an intuition is the least that regulators should do whenever possible. Doing so requires no additional data and very little effort.²⁷³

F. Analyses Should Often Combine Methods and Include Sensitivity Analyses.

Arguably, each method this Article has discussed so far has some theoretical or empirical drawbacks. However, that should not end the inquiry. Rejecting them as suboptimally informative at first is premature.²⁷⁴ Agencies could, and should, employ a variety of methods or conduct sensitivity analyses to test how empirically consequential these limitations are in

²⁷⁰ *Id.* at 66 (italics omitted).

²⁷¹ *Id.*

²⁷² Sunstein notes that, “[i]n some cases, . . . agencies will not be able to identify lower and upper bounds in any way, and breakeven analysis will be helpful largely insofar as it explains what information is missing and why some cases are especially difficult.” *Id.* at 67. This is not such a case. The difficulties in valuing animals aside, if they can be valued at all, surely policymakers can agree on some minimum lower-bound value. This Article hesitates to suggest such a value to avoid producing too strong an anchoring effect. But perhaps policymakers could convene a group of animal-welfare experts or laypeople, have them submit their estimates of lower-bound valuations for different “units” of harm to an animal (e.g., losing a year of life or being forced to live in a gestation crate for a month), and proceed using either an average or, even more conservatively, a lower-percentile value for each “unit.”

²⁷³ For an example breakeven calculation in the *Entergy* context, see *infra* Part VII.C.

²⁷⁴ This Article argues that even imperfect methods may be worth implementing. See *supra* Part III.B.2.

practice. This Section discusses those two supplementary steps in turn.

1. Analyses Should Often Combine Methods.

A first way of assessing precisely how impactful these methods' limitations are could entail performing several of the above analyses. If they all point in the same direction—i.e., yield similar results—then one of three conclusions would be reasonable: (i) the estimates are reasonably correct, (ii) one bias permeates all of the analyses roughly equally, or (iii) different biases of roughly equal magnitude and direction “taint” individual analyses. Conclusion (i) would yield little reason to worry. One might worry about conclusion (ii)—one pervasive bias—rendering the entire undertaking invalid, but two responses might quell this fear. First, the relevant question is not whether the estimates are perfect but whether they bring valuations closer to the “true” value.²⁷⁵ Unless reason exists to suspect that the pervasive bias strongly overvalues animals,²⁷⁶ which is typically unlikely given speciesism's prevalence,²⁷⁷ biased valuations are better than the alternative of valuing at zero. Second, if a bias is strong enough to pervade all empirical estimates, then it likely pervades decisionmaking anyway, so quantitative valuations are no worse than any alternatives. Conclusion (iii)—different biases that happen to impact results similarly—would also be rendered implausible simply by applying Ockham's razor²⁷⁸ because that conclusion requires more assumptions than the others.²⁷⁹

In the likely event that different analyses point in different directions, their results may still be telling. Perhaps investigating such divergent results can help elucidate which approaches and assumptions most impact the results and in what ways. That helps policymakers identify what matters analytically, yielding better-reasoned policy decisions.

2. Analyses Should Often Include Sensitivity Analyses.

²⁷⁵ See *supra* Part III.B.2.

²⁷⁶ See *supra* Part IV.B.2.

²⁷⁷ See Caviola, *supra* note 168, at 57 (concluding “that, as originally proposed by philosophers, speciesism can be considered a form of prejudice” that “is psychologically related to human-human types of prejudice such as racism, sexism, and homophobia” and that has “effects” “on actual, observable behavior”).

²⁷⁸ See R.H. Hemholz, *Ockham's Razor in American Law*, 21 TUL. EUR. & CIV. L.F. 109, 110–11 (2006) (“[The principle of Ockham's razor] is taken to mean that complicated phenomena should not ordinarily be accepted without proof of their necessity. Simpler explanations are to be preferred.” (citation omitted)).

²⁷⁹ See *id.* at 123 (concluding that “Ockham's razor has served several purposes” in American law that evince “a desire for simplicity,” including “simplicity in arriving at reasonable explanations of ambiguous events”).

Another option for testing the extent to which the proposed methodologies' imperfections impact results is to perform rigorous sensitivity analyses. Analysts can implement them in a variety of ways,²⁸⁰ but the central goal is to ascertain "how the uncertainty in the output of a model . . . can be apportioned to different sources of uncertainty in the model input."²⁸¹ In other words, it varies one or more input parameters to determine to what extent bottom-line results are sensitive to such parameters.

Such analyses, which OIRA generally endorses conducting,²⁸² could further inform whether and exactly how the methodologies' imperfections affect bottom-line valuations. Perhaps some of the hardest figures to quantify actually impact results minimally, so such shortcomings matter little. Of course, such figures may matter a great deal, but policymakers often cannot confidently conclude as much without first conducting these analyses. Moreover, sensitivity analyses can help policymakers prioritize which figures are most central and are therefore the most important to prioritize investigating and measuring rigorously. While speaking in the abstract about sensitivity analyses is difficult because their interpretation depends greatly on the actual numerical findings, the central point is that policymakers (and critics generally) should not dismiss imperfect valuation methods before testing whether and how much that imperfection actually impacts bottom-line valuations.

VI. CONSIDERATIONS FOR IMPLEMENTING ANIMAL VALUATIONS

Having discussed a variety of methodologies that regulators can apply in their efforts to value animals, this Section discusses some more general considerations that could apply to more than one approach. It first urges agencies carefully to think through the issue of what happens to animals who a regulation "saves." It then discusses what form a mandate to value animals should take.

A. Analyses Should Consider What Happens When a Policy Saves

²⁸⁰ See, e.g., ANDREA SALTELLI ET AL., SENSITIVITY ANALYSIS IN PRACTICE: A GUIDE TO ASSESSING SCIENTIFIC MODELS 1–28 (2004) (describing various sensitivity-analysis models).

²⁸¹ Andrea Saltelli, *Sensitivity Analysis for Importance Assessment*, 22 RISK ANALYSIS 579, 579 (2002).

²⁸² See PRIOR CIRCULAR A-4, *supra* note 200, at 3 ("It is usually necessary to provide a sensitivity analysis to reveal whether, and to what extent, the results of the analysis are sensitive to plausible changes in the main assumptions and numeric inputs."); UPDATED CIRCULAR A-4, *supra* note 240, at 68 ("If the analytic results are sensitive to a given assumption or data source, alternative modeling assumptions or data sources can be used to demonstrate the sensitivity of the results.").

an Animal from a Bad Outcome.

A careful analysis of regulations' impacts on animals would do well to account for the subtleties of what happens after an animal escapes one bad outcome. Take an illustrative hypothetical example inspired by the CWIS context. Suppose a certain EPA policy would save a fish at sea from impingement and entrainment, but that a fishing operation would then catch and kill that fish for some personal benefit. Suppose further that dying by fishing is considerably more unpleasant than dying by impingement and entrainment.²⁸³ In that case, saving the fish from impingement and entrainment is not so obviously good for the fish. The EPA could conclude that saving the fish is not worthwhile, or (perhaps preferably) that the policy is worthwhile if it undertakes a *supplemental* policy to discourage harmful fishing. Other examples demanding such an analysis are readily apparent: what happens to endangered animals taken from dilapidated zoos, research animals when tests are complete, or wild animals whose habitat receives federal protection is critical in assessing those outcomes. To the extent possible, agencies' analyses should capture this consideration.

Predicting what happens to "saved" animals is especially difficult when it comes to wild animals. Researchers have recently concluded that "there is little reason to conclude one way or another whether suffering or enjoyment is more common" among wild animals.²⁸⁴ If researchers are unsure about whether wild animals' lives, on the whole, are net pleasurable, then even basic questions—like what policymakers' goals for wild animals should be—are exceedingly unclear. This complication is less pronounced for, say, companion animals, for whom pleasure likely usually dominates, and factory farmed animals, for whom suffering likely usually dominates.²⁸⁵

²⁸³ While this hypothetical is merely illustrative so its plausibility does not matter, this assumption is, in fact, plausible. For all the pain that impingement and entrainment cause, *see supra* Part I, fishing at sea often causes likely even worse pain and prolonged deaths, *see* BRAITHWAITE, *supra* note 13, at 174–78 (discussing some of the welfare concerns that often arise from fishing at sea, including, for one form of fishing, "form[ing] gas bubbles inside the body," which "can be extremely painful and runs the risks of causing embolisms"; "huge distension"; fishes' "stomach and intestines [being] pushed out of their mouth and anus" and their eyes "becom[ing] distorted and bulg[ing] out"; being "literally squashed and compressed by the weight of fish above them"; and "slowly sufficat[ing] in air" for "several minutes").

²⁸⁴ Zach Groff & Yew-Kwang Ng, *Does Suffering Dominate Enjoyment in the Animal Kingdom? An Update to Welfare Biology*, 34 BIOLOGY & PHIL., no. 40, 2019, at 1, 3.

²⁸⁵ *See* Paul B. Thompson, *Philosophical Ethics and the Improvement of Farmed Animal Lives*, 10 ANIMAL FRONTIERS 21, 24 (2020) ("The widely accepted view of industrial animal production may be that of David DeGrazia: '*I contend that where the term "factory farming" is properly applied, the conditions of confinement are so intensive that they render the animals' lives not worth living.*'" (quoting David DeGrazia, *The Ethics of Confining Animals from Farms to Zoos to Human Homes*, in THE OXFORD HANDBOOK OF ANIMAL ETHICS 738,

Settling these difficult questions is beyond this Article's scope. Thus, this Article does not attempt to prescribe a single closed set of considerations regarding addressing when and how to model what happens to "saved" animals. The narrower point is that these should be among the issues with which agencies grapple when they implement methodologies to value animals.

B. Policymakers Should Consider What Form a Mandate to Value Animals Should Take.

Even a policymaker who is sympathetic to valuing animals and who has developed a viable methodology to do so still faces a number of questions surrounding how best to implement such valuations. Such questions, while often critical to this push's success, deserve more careful treatment and exploration than this Article can provide. Thus, this Article poses the questions and the issues they pose at a fairly general level, offering only preliminary thoughts.

Leaving the details on how to value animals to individual agencies risks inconsistent and *ad hoc* implementations, so a more centralized directive announcing and detailing this new direction may be preferable. Such a directive could come from OIRA, which would carry the advantages of simplicity and economy. OIRA is already charged with reviewing so-called "significant regulatory actions"—or draft rules that meet one of several criteria, including having annual economic effects totaling over \$200 million²⁸⁶—to check whether each issuing agency can make "a reasoned determination that the benefits of the intended regulation justify its costs."²⁸⁷ OIRA already issues documents to help guide ensuing cost-benefit analyses,²⁸⁸ so it could conceivably simply issue another to push agencies in this new direction.

One might object, however, that moving toward valuing animals is too fundamental a regulatory change to be left to OIRA's bureaucrats.²⁸⁹ On

757 (Tom L. Beauchamp & R. G. Frey eds., 2011)).

²⁸⁶ See Exec. Order No. 14094 § 1(b), 88 Fed. Reg. 21,879, 21,879 (Apr. 11, 2023).

²⁸⁷ This requirement, stated as one of Executive Order 12866's fundamental "principles," Exec. Order No. 12866 § 1(b)(6), 58 Fed. Reg. 51,735, 51,736 (Oct. 4, 1993), falls to OIRA, see *id.* § 6(b)(1) (requiring, for "significant regulatory actions," that "[t]he Administrator of OIRA . . . provide meaningful guidance and oversight so that each agency's regulatory actions are consistent with . . . the principles set forth in this Executive order").

²⁸⁸ See, e.g., PRIOR CIRCULAR A-4, *supra* note 200; UPDATED CIRCULAR A-4, *supra* note 240; DRAFT ECOSYSTEM SERVICES GUIDANCE, *supra* note 183; OFF. OF INFO. & REGUL. AFFS., GUIDANCE ON ACCOUNTING FOR COMPETITION EFFECTS WHEN DEVELOPING AND ANALYZING REGULATORY ACTIONS (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/10/RegulatoryCompetitionGuidance.pdf>.

²⁸⁹ See *Information and Regulatory Affairs*, OFF. MGMT. & BUDGET,

that view, such an important and pervasive policy decision, involving at some level a transfer from humans to animals, should come from a more democratically accountable source. Perhaps the President—a nationally elected figure—could issue an Executive Order, like those that Presidents Clinton, Obama, and Biden issued to define the scope of OIRA’s regulatory review and the principles that should underlie it.²⁹⁰

If one felt that this change should not be left to even the President alone, they may prefer even greater democratic legitimation stemming from Article I bicameralism and presentment. Such lawmaking has spawned massive changes in regulatory review in the past. For example, NEPA mandates that agencies systematically consider environmental impacts for any “major Federal actions significantly affecting the quality of the human environment.”²⁹¹ It even establishes the Council on Environmental Quality within the Executive Office of the President²⁹² “to review and appraise the various programs and activities of the Federal Government in the [sic] light of the policy set forth in” NEPA.²⁹³ While NEPA certainly has its critics,²⁹⁴ few decry it as fundamentally illegitimate. If voters *themselves* express a desire to enact the kind of human-to-animal transfer for which this Article advocates, and Congress responds with legislation that the President signs, then little reason would exist to worry about this mandate’s democratic legitimacy.

VII. CASES IN WHICH VALUING ANIMALS MAY HAVE MADE A DIFFERENCE

Reason exists to suspect that valuing animals would make a difference in a nontrivial number of regulatory decisions. Three case studies show the potential impact of such valuation: pet food safety regulations, rear backup camera requirements, and the CWIS regulations at issue in *Entergy*. This Section discusses each in turn.

A. Pet Food Safety Regulations Affect Pets.

<https://www.whitehouse.gov/omb/information-regulatory-affairs/> (last visited Dec. 7, 2023) (noting that OIRA includes “approximately 45 full-time career civil servants”).

²⁹⁰ See Exec. Order No. 12866, 58 Fed. Reg. 51,735; Exec. Order No. 13563, 76 Fed. Reg. 3821 (Jan. 21, 2011); Exec. Order No. 14094, 88 Fed. Reg. 21,879.

²⁹¹ 42 U.S.C. § 4332(2)(C).

²⁹² *Id.* § 4342.

²⁹³ *Id.* § 4344(3).

²⁹⁴ See, e.g., Diane Katz, *National Environmental Policy Act Is a Half-Century Old — And Long Outlived Its Usefulness*, HERITAGE FOUND. (Mar. 28, 2018), <https://www.heritage.org/environment/commentary/national-environmental-policy-act-half-century-old-and-long-outlived-its>.

One example in which this Article's proposals could have made a difference involves safety-focused regulations for pet food. When the Food and Drug Administration ("FDA") bolstered such regulations in 2015, it calculated monetized benefits between \$10.1 million and \$138.0 million and monetized costs between \$135.6 million and \$170.7 million.²⁹⁵ Thus, within categories that the FDA monetized, costs very likely exceed benefits.²⁹⁶ Despite that, the FDA finalized its rule,²⁹⁷ noting in its formal regulatory impact analysis ("RIA") that "[d]ata gaps persist that prevent us from quantifying all expected benefits of the final rule."²⁹⁸

One of this rule's obvious potential benefits involves pets' interests in avoiding sickness and death.²⁹⁹ While the FDA's RIA does quantify part of the value of reducing risks of serious illness and death in pets, it only counts humans' willingness to pay ("WTP") to treat pet dogs' and cats' foodborne illnesses. Good reason exists to believe such WTP doesn't track pets' interests. First, humans are not likely thinking that they are standing in their pets' "shoes" when they think about how much they should pay, as when they decide whether they would purchase a treatment at some price. These valuations likely more closely reflect benefits that *humans themselves* receive from having healthy pets around.

Second, even insofar as humans *were* standing in their pets' "shoes"—which, again, is dubious—no good reason exists to expect that humans can accurately capture their pets' interests. As discussed above, inter-species biases and a basic lack of relevant knowledge are barriers to accurate assessments, as is the fact that the question of what pets would prefer was never put to pet owners in any sort of systematic or careful way. Indeed, in a seeming nod to the fact that human WTP is divorced from a properly moral accounting of animals' interests, Sunstein notes that "people may be unwilling to pay a great deal for goods that have strong moral justifications," including "animal welfare."³⁰⁰ He concludes that, "[i]n these circumstances,

²⁹⁵ Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals, 80 Fed. Reg. 56,169, 56,175 (Sept. 17, 2015).

²⁹⁶ While the cost and benefit ranges overlap slightly, they only barely do so.

²⁹⁷ See *generally* Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals, 80 Fed. Reg. 56,169.

²⁹⁸ U.S. FOOD & DRUG ADMIN., FSMA FINAL RULEMAKING FOR CURRENT GOOD MANUFACTURING PRACTICE, HAZARD ANALYSIS, AND RISK-BASED PREVENTIVE CONTROLS FOR FOOD FOR ANIMALS: FINAL REGULATORY IMPACT ANALYSIS, FINAL REGULATORY FLEXIBILITY ANALYSIS, FINAL UNFUNDED MANDATES REFORM ACT ANALYSIS 7 (2015).

²⁹⁹ An even fuller analysis might also consider the animals killed to make pet food.

³⁰⁰ SUNSTEIN, *supra* note 21, at 58. Some of this unwillingness may stem from respondents to surveys on the topic objecting to the very idea of translating moral values into dollar figures. While that possibility complicates how to interpret these surveys, even ignoring that complication, Sunstein's general conclusion still plausibly holds.

the market model is inapplicable and WTP reveals very little.”³⁰¹

Third, even if human WTP *were* generally a sufficient proxy for pets’ preferences, the *particular* WTP figures the FDA used are strongly lacking. They derive from a public comment that presents non-peer-reviewed estimates of pet owners’ WTP, which in turn derive from data “not based on actual expenditures on veterinary services.”³⁰² The data come from a 2010 survey “on pet owners’ willingness to pay for saving a sick pet”³⁰³—a survey that, again, was not peer reviewed and that does not specifically ask about the particular kinds of illnesses that the FDA’s regulation addresses.³⁰⁴ The estimate’s underlying methodology rests on irredeemably unjustified assumptions.³⁰⁵ Thus, no reasonable argument exists that the FDA’s analysis

³⁰¹ *Id.*

³⁰² Jerry Ellig & Richard Williams, Mercatus Ctr., Comment Letter on Current Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Food for Animals 7 (Mar. 4, 2014), <https://www.regulations.gov/document?D=FDA-2011-N-0922-0067>.

³⁰³ *Id.* (citing *The AP-Petside.com Poll*, GfK ROPER PUB. AFF. & MEDIA (2010), http://surveys.associatedpress.com/data/GfK/AP-GfK%20Petside%20Topline%20for%20final%20060710_4th%20release.pdf [hereinafter *AP-Petside.com Poll*]).

³⁰⁴ See *AP-Petside.com Poll*, *supra* note 303, at 5 tbl.PET16.

³⁰⁵ In its RIA, the FDA identified and attempted to address two such shortcomings. First, the FDA noted that “[t]he survey” on which the WTP estimate was based “only include [sic] the following 5 choices to the question about how likely would one be to treat their seriously sick animal at the costs of \$500, \$1,000, \$2,000 and \$5,000: ‘extremely likely’, ‘very likely’, ‘somewhat likely’, ‘not too likely’, and ‘not at all likely,’” and faulted the researchers for “only [including] the respondents choosing the ‘extremely likely’ and ‘very likely’” options for each cost. U.S. FOOD & DRUG ADMIN., *supra* note 298, at 36–37. The agency corrected that shortcoming by adding “25 percent of ‘somewhat likely’ respondents at each cost figure” to the counts of those willing to pay those costs. *Id.* at 37. Second, the FDA noted that the “\$1,000” category evinces a willingness “to pay \$1,000, but not \$2,000,” which presumably reflects a willingness to pay anywhere from \$1000 to \$1999 rather than simply \$1000. *Id.* To compensate, the agency “conservatively estimate[d] an additional 40 percent of the difference between the cost category and the next highest cost category for the average WTP in each cost category.” *Id.* at 38. For the open-ended highest cost category of \$5000, the FDA assumed—without any basis except a “belie[f]” that its assumptions “are not unreasonable”—that 4% of respondents would pay \$10,000 and that 0.5% would pay \$15,000. *Id.* Such ad hoc and crude fixes already leave the FDA’s resulting estimates on shaky ground.

Even more damning is a methodological flaw that even the FDA failed to note: the calculation misunderstands the original survey. According to the survey’s designers, a quarter of respondents answered for each cost value—i.e., a quarter of respondents rated their likelihood to pay \$500 for a treatment, a quarter did so for \$1000, a quarter did so for \$2000, and a quarter did so for \$5000. *AP-Petside.com Poll*, *supra* note 303, at 5 tbl.PET16. The FDA’s interpretation that “those who are willing to pay \$1,000, but not \$2,000 to treat their pets are included in the \$1,000 category,” while “[i]n reality,” “these respondents would be willing to pay from \$1,000 to \$1,999,” U.S. FOOD & DRUG ADMIN., *supra* note 298, at 37, is therefore incorrect. Respondents who say they would pay if the treatment were \$1000 could

captured pets' interests.

This example illustrates the potential importance of properly valuing animals' interests in regulatory cost-benefit analyses. The benefits calculation failed to capture those interests, and the resulting benefits figures trailed costs by a decent margin. While the FDA—then under President Obama—finalized the rule anyway, that need not have happened. Given that costs exceeded benefits by a decent margin, imagining an anti-regulatory administration doing otherwise is not difficult, even if the rule would have been substantially justified in terms of pets' interests. To benefit animals appropriately, the regulatory state can and should undertake much more rigorous calculations.

B. Rear Backup Camera Requirements Affect Pets and Wild Animals.

Another example illustrates that valuing animals' interests is possible even in situations that may facially appear not to implicate such interests. To illustrate and discuss some categories of interests that standard regulatory cost-benefit analysis tends not to quantify, Sunstein examines the example of a regulation requiring that new automobiles include rear-visibility cameras.³⁰⁶ Among the interests that the agency discussed only qualitatively are the particular pain that comes when parents hurt or kill their own children³⁰⁷ and the potential welfare gains that people do not predict *ex ante* when deciding whether to pay for a good.³⁰⁸ Sunstein concludes that “[a] task for the future is” “to help quantify some or all of the benefits that, in the government’s view, could not be monetized.”³⁰⁹ As a starting point, he suggests that agencies conduct and “be more disciplined about breakeven

be willing to pay *any amount over \$1000*, as nothing in the survey question sets a ceiling for each cost category. See *AP-Petside.com Poll*, *supra* note 303, at 5 tbl.PET16. For instance, those who rated themselves willing to pay \$500 were not then asked whether they would pay \$1000, \$2000, \$5000, or any other value; they could have been willing to pay \$500 or \$500,000. This fundamental methodological flaw leaves the resulting figure completely unreliable as a measure of pet owners' average WTP.

³⁰⁶ See generally Cass R. Sunstein, *Rear Visibility and Some Unresolved Problems for Economic Analysis (with Notes on Experience Goods)*, 10 J. BENEFIT-COST ANALYSIS 317 (2019).

³⁰⁷ See *id.* at 333 (noting that “this regulation will, in many cases, reduce a qualitatively distinct risk, which is that of directly causing the death or injury of one’s own child” (quoting Federal Motor Vehicle Safety Standard, Rearview Mirrors; Federal Motor Vehicle Safety Standard, Low-Speed Vehicles Phase-In Reporting Requirements, 75 Fed. Reg. 76,185, 76,238 (Dec. 7, 2010))).

³⁰⁸ See *id.* at 342–46 (discussing such unpredicted welfare gains under the label of “experience goods”).

³⁰⁹ *Id.* at 347.

analysis” in order to assess what unquantified benefits would need to be worth to justify the costs.³¹⁰

In this case, another set of benefits that the government failed to quantify—and, indeed, even to discuss qualitatively—involves preventing vehicles from backing over animals.³¹¹ Indeed, in describing a child’s death that the regulation may have prevented, Sunstein notes that “[i]n the morning, the street” on which the death occurred “tended to be filled with children *and people walking dogs*.”³¹² Other pets, like outdoor cats, and wild animals, like squirrels, may also be at risk. Even if exclusively human-centric and unquantified benefits were sufficient to justify costs in this regulation,³¹³ again, that need not always be true. Future regulations may hinge on properly valuing animals’ interests, in which case failing to capture such interests—at least in a breakeven analysis—would yield regulatory decisions that unjustifiably harm or fail to benefit such animals. The next Subsection includes a sample breakeven analysis to show its potential power.

C. CWIS Regulations at Issue in *Entergy* Affect Aquatic Animals.

Now a basis exists to explain why what may seem like a small quibble with the EPA’s reasoning in the decision underlying the *Entergy* case is anything but. The EPA ultimately chose CWIS standards that it predicted would reduce impingement mortality by 80% to 95% and entrainment mortality by 60% to 90%³¹⁴ (call this the “EPA Rule”). An alternative policy could have reduced impingement and entrainment mortality by up to 98% but would have cost \$3.5 billion³¹⁵ (call this the “Aggressive Rule”). The quibble is that the EPA rejected the Aggressive Rule because of its cost,³¹⁶ but its RIA never included a breakeven analysis from the impacted fishes’

³¹⁰ *Id.*

³¹¹ See Federal Motor Vehicle Safety Standard, Rearview Mirrors; Federal Motor Vehicle Safety Standard, Low-Speed Vehicles Phase-In Reporting Requirements, 75 Fed. Reg. at 76,238–40 (qualitatively discussing the rule’s benefits, but not mentioning animals); Daniel Hemel, *Regulation and Redistribution with Lives in the Balance*, 89 U. CHI. L. REV. 649, 686 (2022) (identifying this “important” omission).

³¹² Sunstein, *supra* note 306, at 320.

³¹³ Federal Motor Vehicle Safety Standards; Rear Visibility, 79 Fed. Reg. 19,178, 19,184 (Apr. 7, 2014) (concluding that the “significant unquantifiable considerations associated with this rule” “support this action”).

³¹⁴ *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 215 (2009) (citing 40 C.F.R. § 125.94(b)(1)–(2)).

³¹⁵ *Id.* at 216 (citing 69 Fed. Reg. 41,576, 41,601 (July 9, 2004)).

³¹⁶ See *id.* (“The EPA thus concluded that ‘[a]lthough not identical, the ranges of impingement and entrainment reduction are similar under both options. . . . [Benefits of compliance with the Phase II rules] [the EPA Rule] can approach those of closed-cycle recirculating systems at less cost with fewer implementation problems.’” (last brackets added) (quoting 69 Fed. Reg. at 41,606)).

perspective, asking how much avoiding a fish's death would need to be worth to justify the Aggressive Rule.

This Subsection fills that gap. In the spirit of trending conservative,³¹⁷ it considers only the mortality-reduction range that is most charitable to the EPA Rule. The better the EPA Rule looks, the smaller the marginal benefit from moving from it to the Aggressive Rule, so estimates that make the EPA Rule seem "better" are more conservative. The most conservative range available is therefore the 80% to 95% range reported for impingement. If the breakeven analysis triggers any intuitions under that conservative interpretation, then surely it would under any reasonable interpretation. Within that range, assuming mortality reduction of 80% could be termed "EPA Rule—conservative," while assuming a mortality reduction of 95% could be termed "EPA Rule—very conservative." This latter assumption is conservative to the point of being extremely unrealistic; it sits at the upper bounds of the EPA Rule's likely impact on impingement mortality and *outside* the predicted range of entrainment-mortality reductions.

Whereas the Aggressive Rule would have cost \$3.5 billion, the EPA rule cost an estimated \$389.2 million.³¹⁸ For that extra \$3.1108 billion, what could the EPA have achieved for the fish community by moving from the EPA Rule to the Aggressive Rule? Recall that the EPA Rule was projected to save 1.4 billion fish.³¹⁹ Under the "EPA Rule—conservative" assumption, the Aggressive Rule would have therefore saved $(0.98 / 0.80) * 1,400,000,000$ fish = 1,715,000,000 fish, or 315 million more fish. Under the "EPA Rule—very conservative" assumption, the Aggressive Rule would have saved $(0.98 / 0.95) * 1,400,000,000$ fish $\approx 1,444,000,000$ fish, or about 44 million more fish.³²⁰

To complete the breakeven analysis under the "EPA Rule—conservative" assumption, each marginal fish saved would need to be worth $\$3,110,800,000 / 315,000,000 \approx \9.88 to justify moving to the Aggressive Rule. To think about this value, note that the standard value of a statistical life for humans is around at least \$9 million.³²¹ In that framing, the question becomes whether a human's death is worth $\$9,000,000 / \$9.88 \approx 911,000$ times that of a fish. Put differently, the question is whether a fish's death from impingement or entrainment is worth $1 / 911,000 \approx 0.0001\%$ of a human's death.

Surely a plausible case can be made that an average human's death is

³¹⁷ See *supra* Part IV.B.2.

³¹⁸ ENV'T PROT. AGENCY, *supra* note 4, at D1-2.

³¹⁹ *Id.* at C3-1.

³²⁰ For illustration, the text rounds the values, but the actual calculations use only unrounded figures.

³²¹ See VISCUSI, *supra* note 23, at 6 ("[R]ecent estimates of the value of a statistical life generally place its value at between \$9 million and \$11 million.").

more serious than an average fish's, but under these assumptions, to justify the EPA Rule, the claim must be that the human's death is *more than 911,000 times* more serious. As a simple comparison, one could ask whether a fish's death by impingement or entrainment is even 1% likely to have one nine-thousandth as much impact as a human's death. In that case, a human's death would matter "only" 900,000 times as much in expectation, suggesting that the EPA rule would not be justified even under those strongly conservative assumptions.

Concluding that a fish's death is worth at least that much is highly plausible. Recall that very good reason exists to suspect that even small fish are sentient and can feel pain and other sensations that are relevant to many moral systems.³²² Perhaps the EPA could still justify the EPA Rule at the expense of hundreds of millions of fishes' deaths. For instance, the agency may argue that the fish would instead lead a very grim existence or die in an even more painful way soon after.³²³ But it would at least need to make that sort of consideration explicit.

Keep in mind that these results stem from a *strongly conservative* set of assumptions. Yet even under an *even more* conservative set of assumptions—the "EPA Rule—very conservative" assumptions, which, again, are unrealistically conservative—a plausible case *still* exists that the EPA's policy choice was wrong. Under those assumptions, the breakeven value of a fish's death is about \$70.70. A human's death would need to be worth more than about 127,000 times that of a fish, or a fish's death would need to be worth less than about 0.0008% that of a human, to justify the EPA Rule. Given morally relevant facts about fish discussed *supra*, concluding that a fish's death is (say) 1.25% likely to cause one thousandth as much loss as a human's—in which case humans' deaths would matter "only" 125,000 times more than fishes' and the EPA Rule would remain unjustified—still could be plausible. And, of course, as one moves to less conservative—and very arguably more plausible—assumptions, the EPA Rule would seem worse and worse in comparison. Simply assessing these two highly conservative estimates suggests that the Aggressive Rule's "true" value for the fish community may have been high enough to justify concluding that the EPA should have adopted it.

This example involves no extra data and simple arithmetic that is easily replicable in a spreadsheet or even on a basic calculator. Even still, it helped frame a thoroughly investigated policy in a new light focused on its

³²² See BRAITHWAITE, *supra* note 13, at 113 ("[I]f we already accept that mammals and birds are sentient creatures that have the capacity to experience positive and negative emotions—pleasure or suffering, [*sic*] we should conclude that there is now sufficient evidence to put fish alongside birds and mammals.").

³²³ See *supra* note 283 and accompanying text.

impact on animals. Even more rigorous and intricate analyses could aid policymaking in even more profound ways.

VIII. CONCLUSION

The administrative state has no shortage of critics who decry its huge size and broad influence.³²⁴ Yet for all that scrutiny, one massive blind spot has persisted: its impacts on animals. That blind spot stems in large part from agencies failing to take even modest steps to account for animals' interests in their quantitative cost-benefit analyses. Allowing that blind spot to persist is immoral and produces flawed policies.

Agencies could offer numerous justifications for their failure. This Article attempts to respond to some of them, arguing that none withstands scrutiny on moral or policy grounds. It also suggests some methods to rectify this failure and shows the potential power of even the simplest methods to cast decisions, like that at issue in *Entergy*, in important new lights.

Several directions for future research are apparent. First, and perhaps most obvious, is to generate more quantitative estimates using the methodologies suggested herein and to apply them to appropriate agency policy decisions. Second is to investigate further how best to implement this Article's proposals. Third is to apply thinking similar to this Article's to legal realms besides cost-benefit analysis.³²⁵ Fourth is to investigate what other current or future groups have interests that cost-benefit analysts may have a hard time valuing—including, perhaps, future generations and sentient artificial intelligence—and how best to overcome the obstacles to valuing them.

The administrative state is well positioned to act as a force for good for animals. Moving in that direction should start with recognizing animals' interests, not just in an *ad hoc* and qualitative way, but systematically and quantitatively. Efforts to expand upon and to implement this vision are well worth pursuing.

³²⁴ See, e.g., Chuck DeVore, *The Administrative State Is Under Assault and That's a Good Thing*, FORBES (Nov. 27, 2017, 1:53 PM), <https://www.forbes.com/sites/chuckdevore/2017/11/27/the-administrative-state-is-under-assault-and-thats-a-good-thing/> (highlighting “the 220,000 federal regulators working with a regulatory budget of about \$63 billion who write and enforce 185,000 pages of rules that cost the economy in the neighborhood of \$1.9 trillion annually”).

³²⁵ See, e.g., *Ohio v. U.S. Dep't of the Interior*, 880 F.2d 432 (D.C. Cir. 1989) (discussing damages for actions brought under Superfund in response to government actions that harm wild animals); *Strickland v. Medlen*, 397 S.W.3d 184, 186 (Tex. 2013) (discussing what tort damages are awardable when a defendant negligently kills a family dog, and noting that “a beloved companion dog is not a fungible, inanimate object like, say, a toaster”).