



Guarini Center

on Environmental, Energy
& Land Use Law

NEW YORK UNIVERSITY SCHOOL OF LAW

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Richard L. Revesz
Administrator
Office of Management and Budget, Office of Information and Regulatory Affairs

Re: *Request for Comments on Proposed Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis*, 88 Fed. Reg. 50912 (Aug. 2, 2023) (OMB-2022-0016)

Dear Administrator Revesz:

We appreciate the opportunity to provide information to the Office of Information and Regulatory Affairs (OIRA) on the draft document: *Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis* (“Guidance”).

We are affiliated with the New York University Wild Animal Welfare Program (“Wild Animal Welfare Program”) or the Guarini Center on Environmental, Energy & Land Use Law at New York University School of Law (“Guarini Center”).¹ The NYU Wild Animal Welfare Program aims to advance understanding about what wild animals are like, how humans and wild animals interact, and how humans can improve our interactions with wild animals at scale. The Wild Animal Welfare Program pursues this goal through foundational research in the humanities, social sciences, and natural sciences and through outreach to academics, advocates, policymakers, and the general public.² The Guarini Center conducts applied research to develop environmental law and policy at the local and global levels, including academic scholarship and

¹ This document does not purport to present the views, if any, of New York University School of Law, New York University College of Arts & Science, or New York University. The full list of authors is included in the signature section of the comment.

² For a selection of publications of individuals affiliated with the NYU Wild Animal Program, see Becca Franks et al., *Animal Welfare Risks of Global Aquaculture*, 7 Sci. ADVANCES 1 (2021); Becca Franks et al., *Current State of Fish Behaviour & Welfare Research: Honoring Victoria Braithwaite*, 10 FRONTIERS IN VETERINARY SCI. 1 (2023); JEFF SEBO, SAVING ANIMALS, SAVING OURSELVES (2022); Jeff Sebo et al., *Sustainable Development Matters for Animals Too*, CABI ONE HEALTH 1 (2022).

policy-oriented materials relevant to animal welfare.³ The Wild Animal Welfare Program and the Guarini Center are currently working on a project to identify promising opportunities to adapt the built environment in cities to climate change to benefit humans and animals. The Guidance is relevant to local governments' climate change adaptation efforts that rely on federal funding distributed using benefit-cost analysis ("BCA") under Circular A-94. Federal regulations assessed pursuant to Circular A-4 also impact local environments and animals.

We support the issuance of the Guidance to ensure that ecosystem services and ecosystems are valued and considered by agencies. We also support the current inclusion of animals (including wild animals) in the Guidance. However, we urge OIRA to modify the Guidance to:

1. Encourage agencies to recognize that changes in the environment or ecosystems affecting individual animals (as well as species) may affect human welfare;
2. Ensure that important contributions of wild and farmed animals to human welfare are captured in the causal pathways in the Guidance; and
3. Refer to the potential impacts on the welfare of animals for their own sakes due to changes in the environment or ecosystems.

We describe these recommendations further in the corresponding parts I, II, and III, below.

I. Valuing Impacts to Human Welfare From Impacts on Individual Animals

We urge OIRA to modify the Guidance to refer to the potential that changes to the environment or ecosystems that affect individual animals may impact human welfare. We urge OIRA to include this framing throughout the Guidance, at least insofar as there are differences in human welfare endpoints from causal pathways involving individual animals. The current Guidance does not refer to animals as individuals, focusing instead on animals at the species- and population-level. However, literature suggests that humans value the preservation of the lives of individual animals, such as an individual bear.⁴ Agencies like the Bureau of Land Management already reference the well-being and suffering of individual wild horses in their National Environmental Policy Act documentation of decisions to remove animals from ecosystems and apply fertility control, in addition to species- or population-level impacts.⁵

³ ADALENE MINELLI ET AL., GUARINI CENTER ON ENVIRONMENTAL, ENERGY & LAND USE LAW, TOWARDS PLANT-FORWARD DIETS: A TOOLKIT FOR LOCAL POLICYMAKERS (2021); Katrina M. Wyman & Emma Dietz, *Integrating Food Into Local Climate Policy*, 24 NYU J. LEGIS & PUB. POL'Y 725 (2022).

⁴ See Leslie Richardson & Lynne Lewis, *Getting to Know You: Individual Animals, Wildlife Webcams, and Willingness to Pay for Brown Bear Preservation*, 104 AM. J. AGRIC. ECON. 673 (2022) (estimating the preservation value for an individual brown bear); Christopher Costello et al., *The Charisma Premium: Iconic Individuals and Wildlife Values*, 122 J. ENV'T ECON. MGMT. 1 (2023) (finding an order of magnitude higher wildlife viewing value for a charismatic individual brown bear).

⁵ See, e.g., BUREAU OF LAND MGMT., ENVIRONMENTAL ASSESSMENT DOI-BLM-CA-N050-2019-0011-EA, TWIN PEAKS HERD MANAGEMENT AREA WILD HORSE AND BURRO GATHER PLAN 51 (2019) (finding that "[e]mergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water"); BUREAU OF LAND MGMT., ENVIRONMENTAL ASSESSMENT DOI-BLM-UT-C010-2022-0012-EA.

For example, we propose the following text changes to the Guidance:

- Add the following text (redlined) to page 11 of the Guidance. “For example, people often seek out recreational activities to engage with certain animals (e.g., birdwatching, wildlife viewing, hunting, and sport fishing), and changes in the populations of those animals **or harm to individual animals** can affect recreational opportunities, tourism opportunities, and recreation- and tourism-derived income Still other species (e.g., monarch butterflies), **individual animals**, habitats, or places are of special social or cultural interest, and people want to ensure they continue to exist for current and future generations.”

This recommendation aligns with our recommendation in Part 2, below, to include a causal pathway for the impacts of changes in individual animal welfare on human welfare endpoints.

II. Contributions of Wild and Farmed Animals to Human Welfare

We commend OIRA for including in the Guidance the contributions of wild and farmed animals to human welfare and suggest additional discussion of animals’ impacts on human welfare in the Guidance. We support the Guidance’s inclusion of ecosystem services related to wildlife, the existence and bequest value of animals, movement and migration of wild animals, viewing and tourism opportunities, pollination, culturally valued experiences, and habitat impacts, among others. The Guidance correctly indicates that ecosystem services from wildlife and animal populations’ existence may be relevant to agency regulations about infrastructure; natural resources; energy; agriculture; waste management; disaster mitigation or risk reduction; housing; culturally, spiritually, or historically important buildings, geographic features, or artifacts; and health.⁶

We ask OIRA to include in the Guidance two additional causal pathways from agency action to human welfare endpoints due to ecosystem-service changes: individual animal welfare and individual predators and predator species. We also ask OIRA to provide additional information about causal pathways for rules affecting intensive livestock facilities and recreation or tourism access or activity levels. We agree with the causal pathways currently listed in these areas, but ask OIRA to include additional information.

In general, we ask OIRA to include in the Guidance that agencies should take into account the uncertainty surrounding animal causal pathways and that effects on wildlife may be underestimated or underreported. For example, agencies should address the risk of species or

BIBLE SPRING COMPLEX WILD HORSE GATHER PLAN 37 (2022) (describing how “impacts to individual animals may occur as a result of handling stress associated with the gathering, processing, and transportation of animals”).

⁶ OFF. OF MGMT. & BUDGET, DRAFT FOR PUBLIC REVIEW: GUIDANCE FOR ASSESSING CHANGES IN ENVIRONMENTAL AND ECOSYSTEM SERVICES IN BENEFIT-COST ANALYSIS 5-8 (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/08/DraftESGuidance.pdf> [hereinafter “Guidance”].

individual animal removal from an ecosystem leading to extinctions of non-target species or cascades of extinction in the ecosystem.⁷ This may be reflected in greater cost estimates for agency actions that harm animals. In addition, agencies should consider in their BCA that the negative effects of infrastructure on wildlife populations are likely underreported.⁸

A. Causal Pathways for Changes in the Welfare of Individual Animals

Changes in the welfare of individual animals related to ecosystem-service changes may impact the welfare of humans and should be considered by agencies. There is extensive economics literature documenting how humans have willingness to pay for greater well-being of animals.⁹ Furthermore, when humans witness the suffering of individual animals it can negatively impact their leisure/recreation experiences and mental health.¹⁰

The individual animal welfare causal pathway is distinct from population- or species-level causal pathways. For example, even if an elk species or population is not harmed due to a National Park Service management plan (there is no effect on human welfare endpoints at this level of analysis), the suffering of individual elk due to the management plan may still have a negative impact on human welfare. In a recent lawsuit, a plaintiff argued that her injury was due to seeing individual “elk who were emaciated, dehydrated, and lacking access to appropriate water sources on a number of occasions” which was “horrifically distressing for [her]” and “completely impairs [her] ability to enjoy” the recreational experience.¹¹ This is one example of how the

⁷ Robert T. Paine, *Food Webs: Linkage, Interaction Strength and Community Infrastructure*, 49 J. ANIMAL ECOLOGY 666 (1980); Charlotte Borrvall et al., *Biodiversity Lessens the Risk of Cascading Extinction in Model Food Webs*, 3 ECOLOGY LETTERS 131 (2000); Per Lunberg et al., *Species Loss Leads to Community Closure*, 3 ECOLOGY LETTERS 465 (2000).

⁸ Fernando Ascensão et al., *Beware that the Lack of Wildlife Mortality Records Can Mask a Serious Impact of Linear Infrastructures*, 19 GLOB. ECOLOGY CONSERVATION 1 (2019).

⁹ See F. BAILEY NORWOOD & JAYSON L. LUSK, *COMPASSION, BY THE POUND: THE ECONOMICS OF FARM ANIMAL WELFARE* (2011); Carl Johan Lagerkvist & Sebastian Hess, *A Meta-Analysis of Consumer Willingness to Pay for Farm Animal Welfare*, 38 EURO. REV. AGRIC. ECON. 55 (2011); Meike Janssen et al., *Labels for Animal Husbandry Systems Meet Consumer Preferences: Results from a Meta-Analysis of Consumer Studies*, 29 J. AGRIC. & ENV'T ETHICS 1071, 1071 (2016) (finding “consumers not only had a positive attitude towards more animal welfare-friendly husbandry systems with outdoor access and space allowance but were also willing to pay a price premium for products from such system”); Brian Vander Naald & Trudy Ann Cameron, *Willingness to Pay for Other Species’ Well-Being*, 70 ECOLOGICAL ECON. 1325, 1330-31 (2011) (finding a premium on willingness to pay for humanely raised chickens); Christopher A. Wolf & Glynn T. Tonsor, *Cow Welfare in the U.S. Dairy Industry: Willingness-to-Pay and Willingness-to-Supply*, 42 J. AGRIC. RES. ECON. 164, 168 (2017) (finding willingness to pay for different attributes of dairy cow welfare such as clean facilities, outdoor access, and hoof health).

¹⁰ See Robert G. Franklin Jr. et al., *Neural Responses to Perceiving Suffering in Humans and Animals*, 8 SOC. NEUROSCIENCE 217, 217 (2013) (finding “viewing human and animal suffering led to large overlapping regions of activation previously implicated in empathic responding to suffering”); Nina Kranke, *How the Suffering of Nonhuman Animals and Humans in Animal Research is Interconnected*, 10 J. ANIMAL ETHICS 41 (2020) (finding the “evidence compiled in this article suggests that researchers, technicians, and caregivers who are involved in animal experimentation experience stress, anxiety, guilt, and trauma”).

¹¹ *Gescheidt v. Haaland*, Pls’ Opp’n to Defs’ Cross-Motion for Summ. J. and Reply in Supp. of Pls’ Motion for Summ. J. 5-6 (Feb. 24, 2022), available at <https://animal.law.harvard.edu/wp-content/uploads/58-main.pdf>. The D.C. Circuit has held that a plaintiff “suffered direct, concrete, and particularized injury to [his] aesthetic interest” when “[a]t [a] particular zoo, which he has regularly visited and plans to keep visiting, he saw particular animals

suffering of individual animals related to ecosystem-service changes (lack of water resources) negatively impacts human welfare endpoints listed in the Guidance, such as recreation/leisure and mental health. In addition, humans may place existence value on an individual animal that diverges from their existence value for the species or population. For example, a human may forgo cutting down trees on their property in order to protect the existence of an individual bird who has a nest in the trees, even if the human is not concerned about the existence of that bird species more broadly.¹² Solely identifying species- or population-level causal pathways misses the important impacts of changes in individual animal welfare on human welfare.

We propose the following additions to the Guidance, among other appropriate references to individual animal welfare: Add a causal pathway to the “Species Management” row in Appendix I¹³ that identifies “changes in the welfare and mortality of individual animals” and indicates impacts on the following human welfare endpoints: recreation/leisure, mental health, and passive use values.

B. Causal Pathways for Impacts of Predator Species and Individual Predators

The current Guidance does not include a causal pathway of the impacts of predator species and individual predators. Maintaining or restoring predators who are native to an ecosystem may lead to human welfare benefits through carbon sequestration, ecotourism, enhancing natural plant and animal diversity, riparian restoration, reducing vehicle accidents, and disease regulation.¹⁴ In addition, the disappearance of individual predators or a predator species can result in cascading impacts such as loss of plant species diversity and biomass, reduced carbon sequestration, and

enduring inhumane treatment.” *Animal Legal Def. Fund v. Glickman*, 154 F.3d 426, 431 (D.C. Cir. 1998). The plaintiff “made clear that he has an aesthetic interest in seeing exotic animals living in a nurturing habitat, and that he has attempted to exercise this interest by repeatedly visiting a particular animal exhibition to observe particular animals there.” *Id.* at 432.

¹² This existence value is separate from any use value the human receives from interacting with or viewing the bird. See Guidance, *supra* note 6, at 6 n.24 (categorizing non-use values, including existence value, as when an “individual forgoes current benefits by not consuming a good or service in the current period.”) While there is limited economic literature about the existence value of individual animals at this time, some authors have described that individual animals have existence value that can be measured. See Mark L. Plummer et al., *The Role of Eelgrass in Marine Community Interactions and Ecosystem Services: Results from Ecosystem-Scale Food Web Models*, 16 *ECOSYSTEMS* 237, 243 (2013) (describing how “existence value . . . can be attached to any distinct entity, even an individual animal or plant”); Costello et al., *supra* note 4, at 15 (indicating that “includ[ing] existence value or biological value . . . would surely raise the value of these individual [animals], so our estimates should be viewed as lower-bounds on the overall value of these individuals and their population.”)

¹³ Guidance, *supra* note 6, at iii.

¹⁴ Christopher J. O’Bryan et al., *The Contribution of Predators and Scavengers to Human Well-Being*, 2 *NATURE ECOLOGY & EVOLUTION* 229 (2018); William J. Ripple et al., *Status and Ecological Effects of the World’s Largest Carnivores*, 343 *SCIENCE* 1, 5 (2014); Edward J. Gregr et al., *Cascading Social-Ecological Costs and Benefits Triggered by a Recovering Keystone Predator*, 368 *SCIENCE* 1243 (2020) (finding that a recovering sea otter predator population promotes carbon sequestration and ecotourism); Sophie L. Gilbert et al., *Socioeconomic Benefits of Large Carnivore Recolonization Through Reduced Wildlife-Vehicle Collisions*, 10 *CONSERVATION LETTERS* 431 (2017) (modeling that reintroduction of cougars in the Eastern United States would avoid \$2.13 billion in costs within 30 years of establishment); Jennifer L. Raynor et al., *Wolves Make Roadways Safer, Generating Large Economic Returns to Predator Conservation*, 118 *PROC. NAT’L ACAD. OF SCI.* 1 (2021).

changes in wildfire risk.¹⁵ However, the maintenance or restoration of predator individuals and species can also lead to reduction in the welfare of individual prey animals due to stress, harassment, and altered foraging patterns, as well as declines or extinctions for prey species and increases or decreases for other impacted species.¹⁶ Predator maintenance and reintroduction may also drive human-wildlife conflict.¹⁷ Overall, the positive and negative impacts of predator maintenance and reintroduction merit agency consideration and should be included as a causal pathway in the Guidance.¹⁸

We propose the following additions to the Guidance, among other appropriate references to predator causal pathways:

- For the “Species Management” causal pathway, edit the following (redlined): “Removal, relocation, or reduction of native species (e.g., through habitat loss, hunting, fishing, etc.) can reduce pollinators, predators, or native pest control, reducing crop yields, ~~or~~ increasing costs, or causing cascading effects on animals, species, and ecosystems.”
- For rules involving “Chemical Use” and “Landscaping Chemical Use”:¹⁹ list that predator species and individual predators may be disproportionately harmed by chemical use due to biomagnification causing higher chemical concentrations in predator species.²⁰

C. Causal Pathways for Rules Affecting Intensive Livestock Facilities

We ask OIRA to include further discussion in the Guidance of possible causal pathways from rules affecting intensive livestock facilities and recreation or tourism access or activity levels.²¹ In addition to greenhouse gas emissions, air pollution, and water pollution causal pathways listed, intensive livestock facilities are associated with increased prevalence of antibiotic-

¹⁵ O’Bryan et al., *supra* note 14, at 229 (describing that “predators and scavengers are considered flagship and keystone species, and are sometimes treated as surrogates for the health of entire ecosystems”); *see also* Ripple et al., *supra* note 14, at 5.

¹⁶ *See* Benjamin L. Allen et al., *Animal Welfare Considerations for Using Large Carnivores and Guardian Dogs as Vertebrate Biocontrol Tools Against Other Animals*, 232 *BIOLOGICAL CONSERVATION* 258, 258-259 (2019) (summarizing negative welfare and mortality impacts on prey animals from predator introduction).

¹⁷ *Id.* at 259.

¹⁸ *See, e.g.*, Benjamin L. Allen, *More Buck for Less Bang: Reconciling Competing Wildlife Management Interests in Agricultural Food Webs*, 2 *FOOD WEBS* 1, 1 (2015) (describing that “[m]ammalian top-predators can have positive, negative and negligible effects on economic, environmental and social values, which vary spatially and temporally.”)

¹⁹ Guidance, *supra* note 6, at vii, xiii.

²⁰ *See, e.g.*, Rodríguez-Jorquera et al., *Contamination of the Upper Class: Occurrence and Effects of Chemical Pollutants in Terrestrial Top Predators*, 3 *CURRENT POLLUTION REPS.* 206 (2017).

²¹ Guidance, *supra* note 6, at iii, vii.

resistant bacteria,²² increased incidence of zoonotic diseases,²³ depletion of water resources,²⁴ and land use change that degrades other ecosystem services and negatively impacts biodiversity.²⁵ We ask OIRA to list in the Guidance these causal pathways that in turn lead to adverse impacts on human welfare endpoints. We also ask OIRA to list in the Guidance negative mental health and physical health human welfare endpoints from runoff and deposition from intensive livestock facilities.²⁶ The literature suggests that humans living near intensive livestock facilities are at higher risk for adverse respiratory outcomes, MRSA, Q fever, and stress/mood changes, among other negative health outcomes.²⁷ These impacts come not only from air pollution but also from depositions of waste on agricultural fields, discharges of stored waste into water sources, and animal vectors of bacterial pathogens.²⁸ We also request that OIRA include in the Guidance a causal pathway of individual farmed and wild animal welfare changes due to intensive livestock facilities. As described above, humans are willing to pay for increases in the welfare of farmed and wild animals.²⁹

D. Causal Pathways for Rules Affecting Recreation or Tourism Access or Activity Levels

We request that OIRA mention in the Guidance how rules involving recreation or tourism access or activity levels have a possible causal pathway through human-wildlife conflict.³⁰ While interactions between humans and wildlife can lead to positive human welfare outcomes, they can also lead to human-wildlife conflict that negatively affects the welfare of humans and animals. There is a growing body of scientific literature on human-wildlife conflict that would support agency assessment of how this conflict affects human welfare.³¹ In some cases, sustainable use

²² Alan G. Mathew et al., *Antibiotic Resistance in Bacteria Associated with Food Animals: a United States Perspective of Livestock Production*, 4 *FOODBORNE PATHOGENS & DISEASE* 115 (2007); see also H. Charles J. Godfray et al., *Meat Consumption, Health, and the Environment*, 361 *SCIENCE* 1, 4 (2018).

²³ Gijs Klous et al., *Human–Livestock Contacts and Their Relationship to Transmission of Zoonotic Pathogens, a Systematic Review of Literature*, 2 *ONE HEALTH* 65, 66 (2016) (finding “livestock associated infectious diseases are still a major threat to human health”).

²⁴ See, e.g., Ramona Cristina Ilea, *Intensive Livestock Farming: Global Trends, Increased Environmental Concerns, and Ethical Solutions*, 22 *J. AGRIC. & ENV’T ETHICS* 153, 160 (2009).

²⁵ See Francesco Accatino et al., *Trade-Offs and Synergies between Livestock Production and Other Ecosystem Services*, 168 *AGRIC. SYSTEMS* 58 (2019).

²⁶ Guidance, *supra* note 6, at vii.

²⁷ Joan A. Casey et al., *Industrial Food Animal Production and Community Health*, 2 *CURRENT ENV’T HEALTH REPS.* 259 (2015) (summarizing studies of health impacts from human exposure to intensive livestock facilities); Virginia T. Guidry et al., *Connecting Environmental Justice and Community Health: Effects of Hog Production in North Carolina*, 79 *N.C. MED. J.* 324 (2018).

²⁸ Casey et al., *supra* note 27, at 259-260.

²⁹ See *supra* note 9.

³⁰ Guidance, *supra* note 6, at iii.

³¹ Philip J. Nyhus, *Human–Wildlife Conflict and Coexistence*, 41 *ANN. REV. ENV’T & RES.* 143 (2016); Qingming Cui et al., *The Escalating Effects of Wildlife Tourism on Human–Wildlife Conflict*, 11 *ANIMALS* 1, 13 (2021) (describing how “wildlife tourism attractions should design their activities cautiously and minimize human–wildlife interactions and food provision if possible” as it is “better to control tourists’ behaviors to meet the behavioral

from recreation or tourism may not be possible if the agency has limited ability to control interactions, like wildlife feeding, that can have a significant negative impact on conservation and the long-term welfare of animals.³² We suggest that OIRA alter the text in Appendix I, page iii as follows (redlined): “Increasing access can increase non-native species, novel disease vector introductions, or human-wildlife conflict, disrupting native species populations of commercial, recreational, or public-interest value or leading to physical harm to humans and animals.”³³

III. Considering the Welfare of Animals for their Own Sakes

We recommend that the Guidance encourage agencies to consider the impacts of changes to ecosystems and the environment on the welfare of animals for their own sakes, even if there are no resulting changes in human welfare. Presently, the Guidance uses the term ecosystem services “to encompass all relevant contributions to human welfare from the environment or ecosystems.”³⁴ However, agency regulatory and funding decisions can also produce substantial changes in the welfare of individual animals through changes in the environment or ecosystems.³⁵ There is a “growing international consensus that animal welfare is a crucial consideration in policy analysis” beyond animals’ contribution to human welfare alone.³⁶ Scientists have developed models of the welfare of animals for their own sakes, including the Five Domains, Five Freedoms, and Welfare Quality frameworks, among others.³⁷ For example, the Five Domains model describes how animals are capable of suffering due to lack of nutrition, poor environmental conditions, health conditions, restriction of behavior or movement, and their subjective feelings.³⁸

patterns of wildlife rather than the other way around”); Sara Dubois & David Fraser, *A Framework to Evaluate Wildlife Feeding in Research, Wildlife Management, Tourism and Recreation*, 3 ANIMALS 978 (2013).

³² Dubois & Fraser, *supra* note 31, at 984.

³³ Importantly, the distinction between native and non-native species is at best an imperfect proxy for the distinction between species that produce ecosystem benefits and species that produce ecosystem harms. In cases where these distinctions come apart, the latter is what matters for purposes of this section. See Sebo, *supra* note 2.

³⁴ Guidance, *supra* note 6, at 2.

³⁵ See, e.g., David Fraser & Amelia M. MacRae, *Four Types of Activities that Affect Animals: Implications for Animal Welfare Science and Animal Ethics Philosophy*, 20 ANIMAL WELFARE 581, 586 (2011) (detailing how “disturbing ecological systems and the processes of nature” impacts animal welfare); Mark Peter Simmons, *Evaluating the Welfare Implications of Climate Change for Cetaceans*, in MARINE MAMMAL WELFARE: HUMAN INDUCED CHANGE IN THE MARINE ENVIRONMENT AND ITS IMPACTS ON MARINE MAMMAL WELFARE 125, 131-132 (Andy Butterworth ed., 2017) (describing that “[p]oor nutrition and starvation are clearly welfare concerns” for cetaceans due to climate change).

³⁶ Mark Budolfson, *Animal Welfare: Methods to Improve Policy and Practice*, 381 SCIENCE 32, 32 (2023); see also Charlotte E. Blattner, *The Recognition of Animal Sentience by the Law*, 9 J. ANIMAL ETHICS 121, 122 (2019) (describing that many jurisdictions have enacted laws directly or indirectly recognizing animal sentience).

³⁷ Budolfson, *supra* note 36, at 33; Raphaëlle Botreau et al., *Overall Assessment of Animal Welfare: Strategy Adopted in Welfare Quality®*, 18 ANIMAL WELFARE 363 (2009); David J. Mellor et al., *The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare*, 10 ANIMALS 1 (2020); F.W. ROGERS BRAMBELL, REPORT OF THE TECHNICAL COMMITTEE TO ENQUIRE INTO THE WELFARE OF ANIMALS KEPT UNDER INTENSIVE LIVESTOCK HUSBANDRY SYSTEMS (1965).

³⁸ Mellor et al., *supra* note 37.

Animal welfare frameworks clarify that animals need more than the absence of pain and suffering to lead good lives; they also need positive states like pleasure and happiness, along with the freedom to pursue species-specific goods like socialization.³⁹ For example, anthropogenic climate change reduces sea ice extent, which is associated with greater nutritional stress for seals (due to associated declines in prey species) and increased likelihood of suffering due to disease or parasitic infection, among other impacts on seal welfare.⁴⁰ On the other hand, restoration of habitat can increase the availability of shelter and shade for an animal, leading to an increase in thermal comfort and associated welfare for the animal.⁴¹

The welfare of individual animals affected by changes to the environment or ecosystems merits agency attention. Agencies like the Bureau of Land Management already consider the welfare of individual animals in their NEPA documentation of decisions to remove animals from ecosystems and apply fertility control, apart from species-level or human welfare impacts. For example, in a 2022 Environmental Assessment, the Bureau of Land Management described the impacts of wild horse gathering on individual horses. They described how “impacts to individual animals may occur as a result of handling stress associated with the gathering, processing, and transportation of animals” and that the “intensity of these impacts varies by individual animal and is indicated by behaviors ranging from nervous agitation to physical distress.”⁴² In a 2019 Environmental Assessment, the agency described that, if no action is taken to manage the wild horse population, “[e]mergency removals could be expected in order to prevent individual animals from suffering or death” and “[o]ver time, the potential risks to the health of individual horses would increase, and the need for emergency removals to prevent their death from starvation or thirst would also increase.”⁴³

At a minimum, we recommend that OIRA state in the text of the Guidance that agencies may qualitatively consider the welfare of animals for their own sakes when assessing changes in the environment or ecosystems in BCA. For example, agencies may consider animal welfare for their own sakes in “break-even” or “screening” analyses which “help decide whether unmonetized and unquantified effects are likely to change policy preference rankings.”⁴⁴

³⁹ See Botreau et al., *supra* note 37, at 364 (including positive emotional state, expression of social behaviors, ease of movement, and comfort around resting as indicators of animal welfare); Heather Browning & Walter Veit, *Positive Wild Animal Welfare*, 38 *BIOLOGY & PHIL.* 14 (2023); David J. Mellor, *Positive Animal Welfare States and Reference Standards for Welfare Assessment*, 63 *N.Z. VETERINARY J.* 17 (2015).

⁴⁰ Sheryl Fink, *Loss of Habitat: Impacts on Pinnipeds and Their Welfare*, in *MARINE MAMMAL WELFARE*, *supra* note 35 at 241, 244-247; see also Mellor et al., *supra* note 37, at 7-8 (describing negative impacts on animal welfare from disease, injury, and nutritional inadequacies).

⁴¹ See Mellor et al., *supra* note 37, at 8 (describing how effective shelter and shade can provide thermal comfort to the animal, enhancing their welfare).

⁴² BUREAU OF LAND MGMT., ENVIRONMENTAL ASSESSMENT DOI-BLM-UT-C010-2022-0012-EA. BIBLE SPRING COMPLEX WILD HORSE GATHER PLAN 37 (2022).

⁴³ BUREAU OF LAND MGMT., ENVIRONMENTAL ASSESSMENT DOI-BLM-CA-N050-2019-0011-EA, TWIN PEAKS HERD MANAGEMENT AREA WILD HORSE AND BURRO GATHER PLAN 50-51 (2019).

⁴⁴ Guidance, *supra* note 6, at 32 (explaining that benefits and costs from ecosystem services that are difficult to quantify should be described qualitatively and agencies should use their professional judgment to consider them in

Consider a hypothetical. All else equal, with all costs and benefits to human welfare from ecosystem services already included, Regulation A has net benefits of \$1,000,001 USD and causes extreme suffering to 30 million cardinals. Regulation B has net benefits of \$1,000,000 USD and causes no animal suffering. Considering animal welfare, the agency would weigh the \$1 lower net benefit against sparing 30 million cardinals from suffering. This analysis would support choosing Regulation B.

In addition, we recommend that OIRA include text in the Guidance referring to the literature on quantitative measures of the welfare of animals for their own sakes—including methods for intraspecies and interspecies welfare comparisons.⁴⁵ We acknowledge that these are emerging methods and that it is not yet feasible to make high-quality intraspecies or interspecies welfare comparisons.⁴⁶ However, we recommend that OIRA and agencies monitor this growing body of literature. Circular A-4 acknowledges that “it might be possible to quantify some effects that could not be quantified a decade earlier” in BCAs due to scientific advances.⁴⁷ Where reliable scientific estimates of the welfare of animals are developed, agencies should consider quantifying changes in animal welfare due to agency action. And in the near future, agencies may be able to leverage methodological and scientific advances to assess how changes in the environment or ecosystems impact animal welfare alongside human welfare. OIRA can support agencies by referencing literature on the quantification of animal welfare in the Guidance.

It is consistent with Circular A-4 and A-94 to consider the welfare of animals for their own sakes in BCA. Nothing in Executive Order 12,866 or its successors requires that agencies only consider human welfare or must omit animal welfare in BCA.⁴⁸ The Guidance document itself

BCA); *see also* OFF. OF MGMT. & BUDGET, DRAFT FOR PUBLIC REVIEW: CIRCULAR A-4 REGULATORY ANALYSIS 43-46 (2023), <https://www.whitehouse.gov/wp-content/uploads/2023/04/DraftCircularA-4.pdf>; Andrew Stawasz, *Why and How to Value Nonhuman Animals in Cost-Benefit Analyses*, 57-58 (Aug. 3, 2020) (unpublished manuscript) (discussing the incorporation of animal welfare in breakeven analyses), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3643473.

⁴⁵ For a selection of literature on this matter, *see* Jeff Sebo, *The Moral Problem of Other Minds*, 25 HARV. REV. PHIL. 51 (2018); Mark Budolfson & Dean Spears, *Quantifying Animal Well-Being and Overcoming the Challenge of Interspecies Comparisons*, in THE ROUTLEDGE HANDBOOK OF ANIMAL ETHICS (Bob Fisher ed., 2019); Romain Espinosa & Nicolas Treich, *Animal Welfare: Antispeciesism, Veganism and a “Life Worth Living”*, 56 SOC. CHOICE & WELFARE 531 (2021); Heather Browning, *Welfare Comparisons Within and Across Species*, 180 PHIL. STUD. 529 (2023); WEIGHING ANIMAL WELFARE: COMPARING WELL-BEING ACROSS SPECIES (Bob Fisher ed., forthcoming 2024).

⁴⁶ Budolfson, *supra* note 36, at 33 (“What is needed . . . is a method for aggregating, on a single scale, the net effects of a policy on the welfare of both animals and humans alike (as well as animals of different species). This would enable principled intraspecies and interspecies welfare comparisons, which are the key challenges for next-generation animal welfare methods.”); *see also* Sebo, *supra* note 2.

⁴⁷ OFF. OF MGMT. & BUDGET, *supra* note 44, at 3-4; *see also* Presidential Memorandum of January 20, 2021, 86 Fed. Reg. 7223 (Jan. 26, 2021) (directing the Office of Management and Budget to “identify ways to modernize and improve the regulatory review process” including to “ensure that the review process promotes policies that reflect new developments in scientific and economic understanding” and “fully accounts for regulatory benefits that are difficult or impossible to quantify.”)

⁴⁸ *See* Exec. Order No. 12866, 58 Fed. Reg. 51,735 (Oct. 4, 1993), *reprinted as amended* in 5 U.S.C. § 601 app. at 86-91 (2006) (“Costs and benefits shall be understood to include both quantifiable measures . . . and qualitative

already goes beyond the conventional definition of ecosystem services—which only includes benefits or contributions to human welfare—to include “changes in other environmental costs.”⁴⁹ Since the Guidance is already “[c]onsidering ecosystem services, broadly defined,” we ask OIRA to consider changes in ecosystems or the environment that affect the welfare of animals for their own sakes.⁵⁰ Furthermore, per the Circular A-4 draft, BCA “should include any important non-monetized and non-quantified effects” of a policy.⁵¹ The impacts of changes in the environment or ecosystems on the welfare of animals for their own sakes are important impacts of agency action that should be included in BCA, at least qualitatively.

We request that OIRA incorporate these changes or substantially similar changes to the Guidance. If OIRA chooses not to incorporate the recommendations in part 3, we request that OIRA clarify in the text of the Guidance the extent to which the agency maintains that the welfare of animals for their own sakes may be considered in BCA and OIRA’s reasoning for its position. We hope OIRA will further engage with the impacts of changes to the environment or ecosystems on the welfare of animals for their own sakes, even without associated impacts on human welfare.

Thank you for considering this comment and its proposed changes to the Guidance. We appreciate the opportunity to comment on this important work.

Sincerely,

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measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider”); Exec. Order No. 13563, 76 Fed. Reg. 3821 (Jan. 21, 2011); Exec. Order No. 14094, 88 Fed. Reg. 21,879 (Apr. 11, 2023).

⁴⁹ Guidance, *supra* note 6, at 1, 3 n.5; *see, e.g.*, UNITED NATIONS ET AL., SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING: ECOSYSTEM ACCOUNTING 27, 355 (2021),

https://seea.un.org/sites/seea.un.org/files/documents/EA/seea_ea_white_cover_final.pdf (defining ecosystem services as “the contributions of ecosystems to the benefits that are used in economic and other human activity”).

⁵⁰ Guidance, *supra* note 6, at 1. As the Guidance already acknowledges, if the Guidance is inconsistent with an agency’s operative statutory authorities, the agency should defer to the relevant statute. This would also apply to any consideration of the impacts of changes in the environment or ecosystems on the welfare of animals for their own sakes. *See* Guidance, *supra* note 6, at 2.

⁵¹ OFF. OF MGMT. & BUDGET, *supra* note 44, at 3 (2023).

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