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Extending ecological social work to assessing support for policies addressing animal organizations in disasters

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ABSTRACT

During the COVID-19 pandemic, most, if not all, animal rescues, sanctuaries, zoos, and aquariums experienced financial distress. This stress had an impact on the welfare of animals and their human caretakers, an issue important to ecological social work. We draw on a novel dataset ($n = 2{,}060$) to assess support for policies to extend emergency funding to animal support and conservation organizations in extreme events. We find that, on average women and nonbinary individuals, those with more education, people who have pets, people who are concerned about other humans (humanistic altruism), and those who have greater concern for animals report greater support.

KEYWORDS

Animal studies; climate policy; ecological social justice; ecological social work; environmental values; pandemic policy; VBN theory

Introduction

Biodiversity and wildlife are essential to human health and happiness (Prescott & Logan, 2017). Increasingly social work and social science broadly, have been interested in how biodiversity loss and animal welfare are ecojustice issues where animal wellbeing is intertwined with human wellbeing (see e.g., Besek & York, 2019; Linda & Whitley, 2021; Philip et al., 2013). Climate change is one of the main contributors of biodiversity decline, specifically because it can induce disasters (Oliver & Morecroft, 2014). In the past four decades, 68% of the global wildlife population has been lost (WWF, 2020). Because of this, captive breeding (zoo and aquarium conservation efforts), rescues, and sanctuaries are essential in species survival programs (Gerretsen, 2020). Animals like the California condor, golden lion tamarin, Arabian oryx, Przewalski's horse, mauritius kestrel, and Galapagos giant tortoise have all been saved from extinction by zoological breeding programs, rescues and sanctuaries (Gerretsen, 2020). Emergencies and disasters can be catastrophic for animals, conservation organizations, and conservationists trying to protect vulnerable species (Gaillard et al., 2019). However, there are few policies that support conservation organizations and the people connected to them during short

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and long-term disasters. Better policies are needed to support the infrastructure of zoos, aquariums, sanctuaries, and rescues so that the wellbeing of animals and humans is sustained. This is an ecological social work issue, requiring a shift in thinking to place the interrelationship of humans and nature at the center of how wellbeing for individuals, families, groups, communities, and society is addressed and managed.

Although animal support and conservation organizations often experience short-term low-impact disasters, the COVID-19 pandemic had an unimaginable effect (Macri & Wells, 2023). Once thriving organizations and networks were forced to halt much of their daily operations. This led to breeding programs being canceled, animals transferred, conservation efforts put on hold, rescues restricted, sanctuaries being overcrowded, and organizations becoming economically desperate (Briggs, 2020; Hunton et al., 2022; Macri & Wells, 2023). Behind the structural failures were individuals dedicated to the animals in their care. These individuals experienced psychological distress about animals in their care, and loss of income among other things (Briggs, 2020; Hunton et al., 2022; Macri & Wells, 2023). Animal care work is hard. In fact, zookeepers, in ordinary times, often feel called to this work, but will sacrifice their pay and personal time to meet the needs of the animals and institutions they work for (Bunderson & Thompson, 2009). This moral duty combined with a connection to often struggling institutions can spell disaster for the mental health of animal care workers (Brando et al., 2023). When the mental health of animal care workers suffers so does the welfare of animals (Etim et al., 2014). Among this group of animal care workers are veterinarians and veterinary technicians/assistants who, as a group, experience a high level of compassion fatigue and burnout (Hill et al., 2020). It is not surprising that the COVID-19 pandemic exacerbated these issues.

Brando and colleagues (2023) argue that there is always a link between the welfare of animals and the welfare of people in animal conservation organizations and this is an ecological social work issue. Ecological social work focuses on the symbiotic relationship between all living things. It is specifically concerned with how individuals engage and are impact by the natural environment and how organizational structures create and reinforce inequalities tied to natural resource allocations. Although organizations should always consider how to better allocate their resources, broader structural change is needed to support animal care workers and animals in conservation organizations when disaster occurs.

McCleery and colleagues (McCleery et al., 2020) asserts that due to the profound income losses zoos, aquariums and botanical gardens experienced, COVID-19 policy bailouts should've included conservation, rescue and rehabilitation organizations. The reality is that these policies were rarely applicable to these organizations. Similarly, Loeb (2021) noted that many conservation focused organizations became economically desperate during the pandemic, placing conservation efforts on hold, reducing animal welfare initiatives, or

transferring the financial burdens to employees. All these measures impact the wellbeing of humans and animals. While some scholars have looked at the mitigation of future pandemics by addressing the illegal wildlife trade and wet markets (see e.g., Aguirre et al., 2020), there are no known studies that have specifically addressed public support of policies to provide financial assistance for animal support organizations and the people employed at them in disaster response and readiness. In this project, we look at public support for policies to provide financial assistance to animal support and conservation organizations during disasters and situate this work within an ecological social work framework.

Background and theoretical framework

Biodiversity loss as a social work issue

Environmental protection and biodiversity loss are increasingly being discussed in terms of social work (see e.g., Garlington and Collins). For instance, green social work largely focuses on how our responses or lack of responses to environment issues impact social life (L. Dominelli, 2012, 2018). Much of this literature addresses the impact of sustainable development on communities. Similarly, Tedeschi and colleagues (Philip et al., 2013) argue for a conservation social work to recognize the interconnectedness between humans and nonhuman animals. They assert that biodiversity loss is the most pressing issue that humanity faces as it is essential to the global food supply and human health. They further argue that we cannot understand the mental and physical health of individuals without understanding the natural or unnatural environments they are exposed to.

Bay (2021) goes a step further advocating for an ecological social work that would decenter humans and center the relationship humans have with nature and animals as the focal point. Bay (2021) argues that focusing on sustainability and relationship building could guide social work in practice, research and education and help in enabling humanity to better face global environmental problems. The connection (or lack thereof) between humans and nature or animals is also an environmental justice issue and environmental justice for all is center to ecological social work. Similar to Bay (2021), Fogel et al. (2018) assert that environmental justice should not just be an issue that social workers care about, but it should be a central issue. Whenever a species or the environment is being harmed, there are impacts to human social systems. Building on these arguments, C. T. Whitley (2018, 2019) asserts that animals often serve as sentinels for toxins and degradation in our environments and that being in connection with nature and animals may provide us with companionship, while also showing us how harmful humans have been to the planet and other creatures (C. T. Whitley, 2019). L. Dominelli (2021) even suggests that COVID-19 should serve as a wakeup call to social workers about

how important it is to understand human-animal-nature relationships and the impact of environmental issues on human social systems. All those the issues that could be addressed are expansive, we center our discussion on policy support for the welfare of animals and their caretakers in animal support and conservation organizations as an ecojustice issue that is pertinent to social work through an ecological social work lens.

Zoos, aquariums, rescues, sanctuaries, and the human-animal bond

Many zoos, aquariums, rescues, and sanctuaries engage in animal rehabilitation and conservation efforts. Zoos are establishments that maintain a collection of animals in a park or garden on display for visitors to view. While zoos have a sordid reputation dating back to trapping animals and displaying humans (Campbell, 2013), they have become an important part of conservation efforts (Isabel et al., 2021; Tribe & Booth, 2003). Specifically, zoos that are accredited members of the Association of Zoos and Aquariums (AZA) are committed to responsible wildlife management, conservation and education (Association of Zoos & Aquariums, 2022; Zoological Association of America, 2022). Aquariums have a similar focus with a somewhat less sordid past. Animal rescues are private organizations that take in animals that have often been harmed by humans. Unlike zoos and sanctuaries, rescues do not provide long-term home for animals. Finally, animal sanctuaries are locations where rescued and rehabilitated animals can reside, often for the remainder of their lives. These can also be spaces of activism and advocacy. While zoos do breed, buy, sell, and trade animals, rescues and sanctuaries are limited in how they engage in these activities because of their size and reach. Most animals in zoos, aquariums, rescues, and sanctuaries have been socialized around humans and participate in interacting with humans, even if it is just observing humans from inside an exhibit. While some zoos reported the lack of human interaction as beneficial to the animals, most observed loneliness, overall lack of engagement, and animals being less vocal or social (Tabone, 2021). The same was true for humans. Animal care workers in all of these organizations form deep bonds with the animals that they care for (Birke et al., 2019). When loss of revenue among these organizations occurred, this reduced conservation-oriented work and limited human–animal interactions, which had negative impacts on the welfare of humans as well (see e.g., Fine et al., 2022)

The impact of disasters on conservation, rescue and sanctuary animals

Humans are not the only species to suffer in disasters. During the COVID-19 pandemic, many animal organizations were closed to the public and revenue plummeted. According to the 2021 Wild Welfare Report, loss of income, reduced food supplies, increased food costs, decreased staffing, and increased

transportation challenges were among some of the most catastrophic issues animal organizations faced during the pandemic (Marsh et al., 2021). There were about 10,000 captive wild animal facilities worldwide and only a fraction of them were governed by national welfare legislation. This is important because many animal organizations did not have clear protocols for long-term disaster management with most focused on localized or situational short-term events (Torrico, 2021). The Wild Welfare Report suggests that all animal organizations including zoos, aquariums, rescues, and sanctuaries should have a robust plan detailing how animals will be provided for should a short-term or long-term disaster occur. What the report doesn't do is offer suggestions for how organizations are to fund this plan. In addition, the report does not address the needs or anxieties of the employees in these institutions, many of which were furloughed and unable to see the animals they care for or limited to restricted visits.

McCleery and colleagues (McCleery et al., 2020) assert that, "The near complete cessation of ecotourism and other income sources to many conservation areas and agencies [including zoos, aquariums and sanctuaries] is likely to drastically reduce biodiversity management and anti-poaching activities." (p. 515–6). Simply put, animal organizations, conservation and otherwise, were not ready for such a catastrophic disaster-like COVID-19, which continues to have a lasting impact on the network of animal organizations (and people) addressing species decline, rescue and rehabilitation.

Policies protecting animals and humans in animal organizations during disasters

Disasters have far-reaching impacts to social life (Sheek-Hussein et al., 2021); however, limited resources have been established to protect animals and the people who take care of them. Although species loss is critical issue, the value of animal life remains limited in terms of policy approaches and associated support. Broadly, there are few policies to support human-animal relationships, and even fewer to support human-animal relationships in disasters. Of the policies that exist, three are particularly important, but insufficient: the Animal Welfare Act, the PETS Act, and the CARES Act.

The foundation of most supportive animal legislation in the US is the Animal Welfare Act (AWA) established in 1966 and amended most recently in 2013. It is the only federal law that "regulates the treatment of animals in research, exhibition, transport, and by dealers" (Congress, 2018). However, the AWA is insufficient as it does not protect cold-blooded animals, nor does it require any emergency or disaster planning to be in place by organizations that utilize, display or house animals. The AWA was used during the pandemic, but only as a tool to assess animal welfare. More importantly, it is not disaster-specific and regulation check-ins actually decreased due to lockdowns and

limited staff, which placed conservation efforts and biodiversity at risk (Tabone, 2021). There is no provision in the AWA that specifically addresses how the welfare of animals (or humans) should be governed during a disaster.

To fill this gap, the PREPARED Act was introduced. This act would require all research facilities, dealers, exhibitors, handlers, and carriers to have a contingency plan for the safe handling, treatment, housing, transportation, and care of animals in an emergency or disaster (Tabone, 2021; Titus, 2019). While this would be an improvement, it does not provide financial support to maintain operations, which is needed for animal organizations to survive during emergencies and disasters. The bill was sent to the Subcommittee on Livestock and Foreign Agriculture but had not moved forward by the middle of 2024. There is only one law, the PETS Act, that is directed at supporting human-animal relationships in disasters and this law came from the Hurricane Katrina aftermath, when it was recognized that not addressing human-animal connections during the hurricane led to an increase in human lives lost.

The Pets Evacuation and Transportation Standards Act (PETS Act) was signed into law in 2006 (American Veterinary Medical Association, 2022). This law provides funding to state and local governments to ensure the "Creation, operation, and maintenance of pet-friendly emergency shelters" as well as the potential costs of evacuating and sheltering pets in disasters, including facility, supply, and labor costs (LaVoy, 2019). The PETS Act received broad bipartisan support setting up pathways for emergency planning initiatives to include animals in their protocols (Leonard & Scammon, 2007). It primarily aims to cover the needs of individuals with household pets and service animals during and following disasters (LaVoy, 2019). The PETS Act only operates to protect a very small range of animals, including dogs, cats, birds, rabbits, rodents, and turtles (LaVoy, 2019). It excludes a wide variety of less traditional pets, wildlife or exotic animals, and agriculture animals. It also does not prohibit the discrimination of specific animal breeds by evacuation teams or shelter staff (LaVoy, 2019). Because of these exclusions, the PETS Act does not cover the operations, or most animals within zoos, aquariums, rescues, or sanctuaries. However, aquariums and zoos are required to have disaster and emergency plans in place if they are members of the Association of Zoos and Aquariums (AZA). The AZA established the Zoo and Aquarium All Hazards Partnership (ZAHP) to assist zoos and aquariums with disaster planning and resiliency. Some funding support is provided to ZAHP by the US Department of Agriculture. The initial committee that transitioned into ZAHP was founded in 2005 to address the risk of a Highly Pathogenic Avian Influenza (HPAI) to zoos and aquariums. Funding is provided to state and local government, but not directly allocated to organizations as would be needed to better support animal organizations. During the pandemic, the CARES Act was established. This act was human centered but did provide some benefits to animal organizations.

The CARES Act, which was passed in 2020, was designed to assist in sustaining small businesses under 500 employees from closing during the pandemic. Some animal organizations were able to utilize this act. However, 40% of AZA accredited zoos and aquariums in the US did not qualify to receive funding (Tabone, 2021). The American Rescue Plan of 2021 continued many of programs started by the CARES Act. Under this plan, AZA accredited zoos and aquariums were able to receive some funding. In total, this equated to about $1.6 million (US Fish and Wildlife Service, 2022). This level of funding is insufficient. To give perspective, some zoos like the Toronto Zoo experienced a shortfall of between $400,000 and $500,000 per week. Supporting zoos, aquariums, sanctuaries, and rescues is important for ecological viability. Given that these organizations suffered substantially, halting many conservation programs, and ending others, it is imperative that these organizations are protected should future long-term disaster events like the COVID-19 occur. In this paper, we seek to assess support for extending emergency funding to animal support and conservation organizations should extreme events and disasters occur in the future.

Data and methodology

Data

Three online surveys with overlapping questions were initiated in the field from August 19 to September 10, 2020 through a contract with Qualtrics. This was roughly six months into the start of the COVID-19 pandemic. This was a quota-based sample designed to approximate the US population in terms of race, gender, and geographic location. Individuals were restricted from taking more than one survey. Each survey had about 100 questions and took about 25 min to complete. The survey was designed to address multiple research questions. Participants were paid a rate equivalent to the Federal minimum wage for their participation, about $3.50. Incentives ranged from monetary payouts to associated credits and gift cards all coordinated through Qualtrics. A total of 2,056 participants completed the survey. To better include lesbian, gay, bisexual, transgender, queer, questioning or another underrepresented gender or sexuality (LGBTQ+) people in research, the LGBTQ+ community was oversampled. The final sample is 33% LGBTQ+.

Dependent variables

Policies to support zoos, rescues, and sanctuaries during disasters

There are two dependent variables for this study. The first variable assesses support for extending emergency funding to animal rescues and sanctuaries during extreme long-term disasters such as the COVID-19 pandemic. The question was worded as to what extent do you agree with the following "Provide emergency financial support to animal rescues and shelters." This was a 5-point scale from

"Strongly oppose" to "Strongly support." Overall, the mean support level was at 3.77. This indicates support between "Neither support nor oppose" and "Somewhat support." The second question extends this same logic of emergency financial support to zoos and aquariums. This question was worded as and "Provide emergency financial support to zoos and aquariums." The mean for this variable is similar at 3.78 also indicating an average of "Neither support nor oppose" and "Somewhat support."

Independent variables

Socio-demographics

There are many factors that likely contribute to support for extending emergency funding to animal sanctuaries, rescues, zoos, and aquariums during extreme long-term disasters. We turn to the literature addressing what drives support for environmentally oriented policies. As an exploratory study, we have included basic socio-demographics used in similar analyses such as sexuality, gender, race, education, income, political orientation and ideology, evangelicalism, and having a pet. Socio-demographics are a combination of ascribed status (labels put on us at birth) and achieved status (labels we attain).

Sexuality is increasingly gaining interest in environmental research. For instance, a recent study suggests that LGBTQ+ people may care more about climate change and other environmental issues when compared to their heterosexual cisgender counterparts and this may make them more likely to support policies that address environmental ills (C. T. Whitley & Bowers, 2023). Gender may also be important. People were asked how they identify in terms of being a man, woman or nonbinary. We include gender identity as a predictor as there is a long history of those who identify as men being less likely to show concern for the environment and animals (Blocker & Lee Eckberg, 1997; T. Dietz et al., 2002). Those who identify as women or nonbinary are included together in comparison to those who identify as men. Women and nonbinary people are included together for statistical reasons. The nonbinary group was too small to provide sufficient power as an independent group. Previous work has shown that the group performs similar to women and that collapsing the groups together is preferred over deleting, which only serves to further silence the population (C. T. Whitley & Bowers, 2023). The sample approximates the US census on gender with nearly 50% identifying as women.

Race is another important factor in environmental policy support. Research suggests that people of color have greater environmental concern compared to white individuals, but they are also less involved in traditional environmental organizations because of a legacy of institutional racism and exclusion (Dietz & Whitley, 2018a). Concern for animals has often been pitted against concern for humans, where people of color have been on the losing end. This has led some scholars to call for a decolonization of animal welfare (Jenkins & Rudd, 2022).

During COVID-19 it was widely publicized that people of color were especially vulnerable to the virus due to social inequalities (Ahmed & Jackson, 2021; Andrasik et al., 2022).

Education may or may not be an important indicator in policy support. Some studies suggest that education is important for environmental concern, but much of this importance centers on environmental specific education being important (Ardoin et al., 2020), while other studies-especially studies related to climate change-show that people seek sources that support their beliefs, and that overall education has less of an influence on environmental concern (Rosenthal, 2022). On average, survey participants had at least some college. Age has a negligible effect in most environmental concern and policy support studies. However, there is mounting evidence to suggest that older adults are engaging with nature more, avoiding environmental toxins, and conserving at a greater rate when compared to younger people (Wang et al., 2021; Wiernik et al., 2013). Among our respondents, on average, individuals reported being 50 years old. Income was collected within a range. The average income is somewhere between option 3 and 4, which would indicate a range of $50,000 – $99,999.

Political orientation and party affiliation have been widely influential in environmental concern and policy support with conservatives and Republicans being less likely to show concern or be supportive. These variables were measured on a seven-point scale from very liberal to very conservative and very strong Democrat to very strong Republican. On average, our sample fell in the middle of both scales with a 3.62 rating for Democrat to Republican and a 3.81 rating from liberal to conservative. In our sample, holding an evangelical ideology operates the same way, with those identifying as being evangelical showing less concern and less support.

Our connections with animals shape how we think about animals. We used "having a pet" as an approximation for connection to animals to assess "the pet effect" or the idea that having a pet has physical and mental benefits, while also making us more empathetic and attuned to other issues. Research shows that most people consider their pets as family members (American Pet Products Association, 2018), and that having a pet, although nuanced, can provide physical and emotional benefits (Hui Gan et al., 2020; Janssens et al., 2020; Phillipou et al., 2021), as well as correlate with positive attitudes toward other animals (Shuttlewood et al., 2016).

Values

In assessing environmental concern and policy support, increased attention is being placed on the social psychological factors that dictate beliefs and actions. Values serve as guiding principles in a person's life (Schwartz, 2015). The development of the environmental values scales were based on Schwartz values, but situated within concern and connection to the environment (T. Dietz, 2015; T.

Dietz et al., 2005). In this analysis, we focus on environmental values, including four values shown to have high reliability and validity as influential in environmental concern: humanistic altruism, biospheric altruism, animal altruism, and egoism. All of these were based on three questions to form a scale with Cronbach's alphas all above 0.70. Environmental values have readily been included to analyze support for policies such as support for plant-based diet policies (Whitley, Gunderson, et al., 2018), environmental decision making and policies (Choi et al., 2015; Dietz & Whitley, 2018b; Whitley, Takahashi, et al., 2018), support for energy policies (Steg et al., 2005). People who adhere to humanistic altruism show greater concern for other humans, while people who adhere to bioshperic altruism and animal altruism show greater concern for nature and animals. Counter to these value orientations is egoism. Egoism is often negatively correlated with environmental concern and pro-environmental behaviors.

Beliefs

Beliefs are also important. For this analysis we kept the beliefs simple. We assessed to what extent people were worried about COVID-19 impacting companion animals, agriculture (food) animals and wildlife. Beliefs were measured on a five-point scale from "Not at all worried" to "Very worried." On average, people were most concerned with food animals being negatively impacted, followed by wildlife and companion animals. It is unclear if concern for agriculture was altruistic or egoistic in people being concerned about the supply chain of meat. The use of values and beliefs to predict support is often considered part of the values-beliefs-norms (VBN) modeling framework, where values predict beliefs and beliefs predict support for a particular policy or outcome. VBN models have readily been applied to assess correlations in environmental decision-making across thousands of studies. In this case, we use this framework to assess support for environmental policies, similar to the application in previous studies (T. Dietz, 2015; Steg et al., 2005; Whitley, Gunderson, et al., 2018). The descriptive statistics for all variables used in the analysis can be found in Table 1.

Methods

We present ordinary least squares (OLS) regression to assess predictive correlations of support for the two policies. While VBN theory could lend itself to an SEM model, some scholars have chosen OLS over SEM models when the OLS model shows that values have a direct influence on the dependent variable, instead of having no direct effect and the need to assess if there is an indirect influence through beliefs (see e.g., Torres-Antonini & Vatralova, 2012). As such, SEM models are also less accessible to a wider interdisciplinary audience. In addition, some argue that OLS is not sufficient for ordered categorical dependent variables; however, the literature is clear that when there are five or more ordered categories,

Table 1. Descriptive statistics for variables used in the models.

Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent variables					
Support for zoos	2,060	3.785	1.019	1	5
Support for rescues	2,060	3.769	1.072	1	5
Independent variables					
Socio-demographics					
LGBTQ+	2,060	0.333	0.576	0	5
Woman	2,060	50.000%	0.500	0	1
People of color	2,060	38.981%	0.488	0	1
Education	2,060	4.258	1.507	1	6
Age	2,060	49.662	18.206	19	89
Income	2,060	3.367	1.681	1	6
Dem to Rep	2,060	3.621	2.063	1	7
Lib to Con	2,060	3.817	1.852	1	7
Evangelical	2,060	2.492	1.542	1	5
Connection to animals					
Has a pet	2,060	55.291%	0.497	0	1
Values					
Humanistic	2,060	4.209	0.854	1	5
Biospheric	2,060	4.108	0.887	1	5
Animal	2,060	4.052	0.888	1	5
Egoism	2,060	3.472	0.958	1	5
Beliefs about impact					
Companion animals	2,060	2.682	1.408	1	5
Agriculture animals	2,060	2.950	1.391	1	5
Wild animals	2,060	2.783	1.432	1	5

an OLS model can be assessed and is likely easier to present and more readily accessible to a broad audience without compromising research integrity (Johnson & Creech, 1983; Norman, 2010; Sullivan & Anthony, 2013; Zumbo & Zimmerman, 1993). In this case, we built SEM, logistic regression, and OLS models. We compared the models and settled on the OLS framework because findings across all models were similar and OLS regression models are most appropriate for interdisciplinary accessibility.

Results

OLS regression results are presented in Table 2. Average support for policies to extend funding to rescues, shelters, zoos and aquariums during emergencies and disasters hovered between "Neither support nor oppose" to "Somewhat support." Although not strong support, respondents tended to show more support over opposition. Differences across demographics, values and beliefs were correlated with level of support or opposition. On average women and nonbinary individuals, those with more education, people who have pets, people who are concerned about other humans (humanistic altruism), and those who have greater concern for animals (animal altruism) report greater support for both policies. These findings largely follow previous work on what drives environmental concern and policy support (Čater & Serafimova, 2019; T. Dietz et al., 1998; Shen & Saijo, 2008). Interestingly, identifying as a person of color was negatively correlated with support for policies.

Table 2. OLS regression with robust standard errors predicting support for extending funding to zoos, aquariums, rescues and sanctuaries during pandemics and other disasters ($N = 2,060$).

	Extend Support to Rescues and Sanctuaries		Extend Support to Zoos and Aquariums	
	Coeff	SE	Coeff	SE
Socio-demographics				
LGBTQ+	−0.031	0.041	−0.065	0.040
Woman	0.107*	0.048	0.115*	0.049
People of Color	−0.168***	0.051	−0.204***	0.051
Education	0.0724***	0.016	0.052***	0.016
Age	0.001	0.001	0.003*	0.001
Income	−0.028	0.014	0.005	0.014
Dem to Rep	0.001	0.013	−0.033**	0.012
Lib to Con	−0.014	0.014	0.000	0.014
Evangelical	−0.025	0.015	−0.013	0.015
Connection to animals				
Have Pet	0.289***	0.045	0.158***	0.045
Values				
Humanistic altruism	0.229***	0.040	0.140***	0.038
Biospheric altruism	0.046	0.041	0.078	0.041
Animal altruism	0.401***	0.038	0.343***	0.037
Egoism	−0.135***	0.026	−0.127***	0.030
Beliefs about Impacts				
Companion animals	0.061**	0.024	0.028	0.024
Agriculture animals	−0.010	0.024	0.027	0.024
Wild animals	0.041	0.024	0.039	0.023
Constant	0.918***	0.163	1.399***	0.159
R-squared		0.321	0.322	

p<0.05***, p<0.01**, p<0.001.

Beyond the similarities in the models around basic demographics, there were two differences. Age was not a significant factor in support to extend financial resources to rescues and sanctuaries, but it was a factor in extending support to zoos and aquariums, so that older adults were more likely to support this policy. However, the coefficient was very small (0.003). So, while there was significance, the effect is minimal. There was no difference in the influence of political orientation (liberal or conservative) on policy support for either policy, meaning that liberals and conservatives responded similarly. However, political party identification was significant with a low effect size. Republicans were less likely to support extending financial resources to zoos and aquariums. There was no difference between Republicans and Democrats in extending funding to rescues and sanctuaries.

As expected, values were important. There was a positive correlation between higher levels of animal altruism and policy support for both policies. There was no correlation between biospheric altruism, people who show care for the environment and support, although significance was borderline for zoos and aquariums ($p = .055$). Egoism was negatively correlated with support across both policy areas. Beliefs were largely insignificant in the model. The only belief that mattered was that as perception of the impact COVID-19 would have to companion animals increased, so did support for extending financial resources to rescues and sanctuaries. Although these are not complicated models, they did explain a fair amount of variance (roughly 32% for each policy).

Discussion

In many ways, the COVID-19 pandemic was positive for animals. Stories surfaced of wildlife returning to urban areas, and animal and car collisions decreased (Abd, 2020; Manenti et al., 2020; Shilling et al., 2021; Zellmer et al., 2020). Companion animals also benefitted from the pandemic. As people faced social and physical isolation, they turned to animals for support. Adoption rates of dogs and cats increased (Ho et al., 2021; Morgan et al., 2020), and companion animals aided people in coping with pandemic conditions (Clements et al., 2021; Hunjan & Reddy, 2020; Kogan et al., 2021). However, not all impacts to non-human animals were positive. Animal rescues, sanctuaries, zoos and aquariums struggled to fund their programs and provide for the animals in their care. Reductions in funding limited conservation efforts, negatively impacted the wellbeing of animals and humans.

In this study, we find marginal support for policies to extend financial support to zoos, aquariums, sanctuaries, and rescues during extreme long-term disasters. This may reflect the fact that people were more concerned about the impacts to humans during the pandemic, or that they did not understand the value of animal organizations to human and animal wellbeing. Given that this cannot be distinguished, this question should be assessed outside of the pandemic context. While people saw the positive impacts to wildlife on the news, they also saw the negative impacts to wildlife confined in zoos and aquariums. The lack of significance in perception of the impact to wildlife could reflect this nuance in respondent understanding.

As with other environmental issues, women often show more concern because they recognize risk differently. It is likely that many animal care workers, majority being women, experienced severe anxiety regarding the pandemic, their employment, and for wellbeing of the animals in their care. Thus, not only did this pandemic burden women at work, but it likely burdened their mental capacities, which may have a lasting impact. It is not surprising that women show more support for these policies given their dominance in the animal care. Future studies need to assess the inequitable gender distribution of burdens and lack of support in animal care work during disasters. This a particularly important ecological social work issue as it brings to light discrepancies in experience based on social identifiers.

People of color showed less support for policies, which is unlikely about broader support for animals or environmental concern, and more likely situational given the reality that people of color were more negatively impacted by the COVID-19 pandemic compared to white individuals, with many people of color not having adequate healthcare resources or support systems. This finding should be further assessed outside of the pandemic and other disasters. Similar studies should also assert that support of these policies

would not deter support for policies to address social inequalities and resources to people of color.

The conservation movement has largely been dominated by white men, with women and people of color effectively left out (C. T. Whitley & Kalof, 2020). This dynamic needs to change. Greater resources are needed to support people of color as conservationists and as zoo and aquarium professionals. The American Zoological Association has been attempting to address diversity, equity, access, and inclusion (DEAI) among their organizations. As of 2024, they see this as a critical need and something that must be included in all programing and reflection moving forward. This is a good first step as a lack of recognition and support for people of color creates undue burdens in the workforce, which may exacerbate compassion fatigue, and limit viable opportunities.

Older adults showed greater support for policies directed at zoos and aquarium. Such an effect may highlight a changing view of the necessity and value of zoos and aquariums among younger individuals. While younger generations are more engaged with conservation and specifically issues related to climate change (Tyson et al., 2021), they are also questioning the use and viability of zoos and aquariums in conservation, and the welfare of animals in their care (Learmonth, 2019). The coefficient was significant, but small, meaning that the effect is minimal at best. However, this statistic should be monitored to see if this trend continues as younger generations age.

Within the US, politics play a central role in many environmental issues such as climate change (Ballew et al., 2019; McCright & Dunlap, 2013). When environmental issues have been politicized, opinion and support of issues is influenced heavily by political factors like partisanship with Republicans showing less concern for the environment and less interest in supporting associated environmental policies compared to Democrats (Hula et al., 2017). There was no difference in the influence of political orientation (liberal or conservative) for either policy. However, party affiliation was significant with Republicans being less likely to support extending financial resources to zoos and aquariums. There was no different between Republicans and Democrats in extending funding to rescues and sanctuaries. This may suggest that zoos and aquariums are increasingly being considered as conservation entities by Republicans which may trigger associated opposition.

Research suggests that values are guiding principles in one's life. The three altruism categories include measures that differentiate care for humans, animals and the environment, which have been shown to be distinct measures (see e.g., T. Dietz et al., 2017). A standard measure of egoism, which is counter to altruism, was also included. Adherence to humanistic altruism was associated with greater support across both policies. This is interesting in that this is a human centered value, and the policies were about animals. People may be recognizing that support for these organizations also helps people. Lack of

significance on animal altruism, especially for rescues and sanctuaries, may indicate that concern for rescues and sanctuaries is not seen as an environmental or conservation issue, where concern for zoos and aquariums is. Further research should assess if in answering these questions, people are more concerned for the animals or the people taking care of the animals. It is likely both, but this is something we could not be determined from this study. As with support of most environmental issues, egoism was negatively correlated with pro-environmental policy support. People who are self-interested and concerned with power are less likely to care about others-animals or humans, unless they can recognize the direct value to the self.

We tried to capture the current situation and the influence of the pandemic on perceptions through beliefs about the impact to different animal groups. The fact that beliefs are largely insignificant likely reflects the fact that we didn't have measures of the most influential beliefs involved in this decision-making process. There were numerous stories showcasing the positives for free wildlife. Similarly, there were frequent stories about the impacts to zoos and aquariums. How people answered this question likely depended on how they were thinking about wildlife (as free or in zoos and aquariums) when taking the survey. Only belief about COVID-19 having a negative impact on companion animals was significantly correlated with support for rescues and sanctuaries. All other beliefs were insignificant.

Conclusion

Considering the extensive negative impact the COVID-19 pandemic had on animal rescues, sanctuaries, zoos and aquariums we assessed support for extending emergency funding to these entities during future pandemics and other disasters. We situate this issue within an ecological justice social work perspective. Connected to social work, we suggest that the viability of animal rescues, sanctuaries, zoos and aquariums in disasters is an ecological social work issue because our interactions with the natural environment and non-human animals influence our personal and social wellbeing. When the well-being of animals suffers, so does the wellbeing of humans. To use an ecological social work perspective, we must move beyond centering humans and human concerns, to centering ecological systems that involve humans, animals, and the environment to be successful and sustainable.

Differences across socio-demographics often highlight inequalities and issues of justice. Our findings demonstrated that women and nonbinary people, those with more education, people with pets, and people adhering to humanistic altruism showed greater support for policies to extend emergency funding. Those adhering to egoistic values showed less support. More needs to be done to address how issues can be framed to draw support from egoistic individuals especially when such policies are important for human and animal

sustainability. One theory that has been suggested in previous work is the theory of friendliness, which asserts that framing animals as friendly and important to personal wellbeing and authority may be useful (C. T. Whitley et al., 2023).

Animal care workers experience compassion fatigue. Although compassion fatigue is a reality among this group, there is only one overarching social work type organization to provide support for animal care workers and this is the International Association of Veterinary Social Work, which is an interdisciplinary organization. There are some limitations to this organization. It is a relatively new organization, started in 2018 and the focus is on social work and not animal care workers broadly. While the organization may market themselves as interdisciplinary and inclusive, zoo, aquarium, sanctuary, and rescue organizations that are not also connected to social work may not be as readily engaged. In addition, while many organizations promote "self-care," this can be limited by what the organization is able to offer. The expanse of the IAVSW or a new national or international organization designed to assist animal care workers with their physical and mental health needs during and post disasters is very much needed. Such an organization could be used to create networks of support around topical areas such as, utilizing self-care strategies when disasters impact your work and the animals you work with.

There are some limitations to this study. While this study uses data from the US, the implications are applicable to other regions of the world as well, especially in the consideration of broader conservation efforts. However, data from other locations outside of the US should be gathered as policies protecting organizations that care for animals and assist with conservation efforts are needed globally. Future analysis should better assess how support of these entities assists in DEAI efforts and specifically in supporting women and people of color in conservation efforts. The belief variables in this study are minimal and imperfect. Future studies should ask not just about impact to animal groups, but also impact to animal residences like the natural environment or confined environment like a zoo or aquarium. People may also have different perceptions of zoos, aquariums, rescues and sanctuaries. Future research should include a question about general perception, like, or support of these organizations. It is possible that people may want to support human and nonhuman animal welfare, but that they don't like certain organizations like zoos or aquariums.

In general, more studies are needed to look at issues from an ecological social work framework and recognize that the environment and our connection to it has a profound impact on our physical and mental wellbeing, as well as community cohesion. In continuing to challenge social work, and all social sciences, to move beyond centering humans to centering ecosystems, we can begin to identify and name connections and establish systems and policies designed to support broad ecosystem success inclusive of both humans and non-human animals.

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