

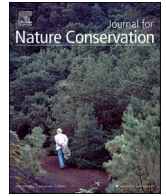


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Political polarization of conservation issues in the era of COVID-19: An examination of partisan perspectives and priorities in the United States

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ABSTRACT

As a zoonotic disease with unprecedented global impacts, COVID-19 may influence how people prioritize issues related to wildlife conservation. Using a nationally representative sample of US residents, we investigated: (1) how COVID-19 affected the relative importance of conservation issues among adults with different political ideologies, and (2) how the pandemic affected political polarization of conservation issues during the 2020 general election in the United States. Conservation issues such as endangered species and controlling zoonotic disease ranked low in importance among the 14 policy issues considered, even lower than environmental issues such as climate change and environmental protection; however, the importance of all conservation issues increased as a result of COVID-19. Political polarization surrounding the perceived importance of conservation issues also increased during the COVID-19 pandemic, with Democrats reporting larger increases in importance than Republicans. Polarization was driven by the most conservative Republicans and the most liberal Democrats. But this polarization was less extreme than it was for other issues such as climate change and healthcare. Findings highlight the need for communicating links between zoonotic disease and human interactions with wildlife and the environment. Acting quickly may be critical in areas where conservation issues are primed to succumb to political polarization.

1. Introduction

Natural resource conservation has historically struggled to gain traction as a political priority around the world. For example, issues related to both the environment (e.g., climate change) and conservation (e.g., endangered species management) tend to be ranked well behind a core set of social issues including the economy, healthcare, and immigration in the United States (Leiserowitz et al., 2019, 2020; Pew Research Center, 2020c), the European Union (Politico, 2021), and Australia (The Australia Institute, 2020). Prioritization of environmental policies, including those focused on conservation and wildlife issues, is based on a complex and multidimensional set of values and attitudes (Manfredo et al., 2021). Conservation attitudes include concern and support for environmental protection, and the role of government, the free market, and the responsibilities of private citizens (Carman, 1998). These attitudes are heavily influenced by the background political

climate and current events (Carter, 2018). For instance, support for or opposition to wolf conservation is strongly influenced by multiple factors including political ideology, media coverage, media message framing, and beliefs regarding property rights and federal versus state power (Bruskotter et al., 2011; Casola et al., 2020; Eeden et al., 2021; Hamilton et al., 2020; Niemiec et al., 2020).

Major crises can also influence political priorities, including how the public values conservation and the environment. The COVID-19 pandemic may be the type of event that shifts prioritization of conservation issues given its linkages to ideology and major impacts on public wellbeing (Beall et al., 2021; Bouman et al., 2021). Unlike pandemics of the past, including the 1918 Spanish flu, Malaria, HIV, and Ebola, the media has widely communicated the likely wildlife related origin of COVID-19 and the omnipresent disease threat associated with wet markets that sell wildlife (Andersen et al., 2020; Wu et al., 2020; Zhou et al., 2020). This coverage highlights the importance of biodiversity

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conservation-related political debates and the need to increase their salience among policy makers and the public (McElwee et al., 2020). Further, COVID-19's tragic toll on human life (Centers for Systems Science and Engineering, 2021), significant economic impacts (Şahin et al., 2020), and effect on healthcare systems globally (Miller et al., 2020; Papoutsi et al., 2020) suggest it may change the landscape in which conservation issues are viewed. Emerging research also suggests responses to COVID-19 may result in numerous negative impacts to conservation. For example, the prioritization of economic recovery may come at the expense of conservation funding, travel restrictions may limit nature based tourism, and economic struggles may result in increased illegal take of wildlife for subsistence purposes or as an alternative source of income (Gibbons et al., 2021; McCleery et al., 2020; Sandbrook et al., 2020). It is therefore possible that conservation may be sinking in a storm of other more salient issues, or it could be emerging as relatively more important as the public recognizes key links between humans, wildlife, and nature.

The impacts of COVID-19 on the prioritization of conservation issues may be shaped by recent waves of identity politics. Support for conservation and wildlife issues is not homogenous among the electorate in many nations. Historically, divides in support existed between conservative and liberal voters, with liberals more likely to reference environmental policies as top election priorities (Pew Research Center, 2020a). This divide has been further widened by a global wave of populism (de la Torre, 2015). Political actors across ideological spectrums have promoted polarization with populist messaging blaming elites for the challenges faced by 'good people' (Busby et al., 2019). This phenomenon may be particularly strong in the United States, especially in the context of climate change (Huber, Fesenfeld, & Bernauer, 2020). Preliminary research suggests the same partisan divide may exist in communication surrounding the COVID-19 pandemic and the associated public health response (Bruine de Bruin et al., 2020; Hart et al., 2020). Issues focused on conservation and the environment are often perceived as international, technical, and something only the privileged worry about, making them susceptible to anti-elite, populist message framing (Huber et al., 2020; Van Liere & Dunlap, 1980). The partisan divide may also shape how the public views wildlife and conservation issues related to COVID-19 (Beall et al., 2021). For example, in the United States, multiple studies suggest conservatives are likely to view the economy as the most important political priority of 2021, while liberals are most likely to list dealing with COVID-19 as the most important issue (Pew Research Center, 2020c, 2020d, 2020b). However, it is unknown how COVID-19 has impacted the importance of and the political polarization surrounding wildlife and conservation related issues among both conservative and liberal voters.

The United States provides a good context to understand how COVID-19 impacted public prioritization of conservation issues for multiple reasons. First, it is widely accepted that COVID-19 has become a politicized issue among the US electorate (Pew Research Center, 2020d). Political polarization is the adoption of increasingly dissimilar attitudes and opinions towards policies or issues among subsets of the population (Heltzel & Laurin, 2020). This polarization, fueled by US media and politicians, has weakened the public health response and resulted in worse impacts per capita compared to other industrialized nations, thus leading to strong opinions among the US electorate (Bruine de Bruin et al., 2020; Mordecai & Connaughton, 2020). Polarizing opinions in the US were also abetted by a COVID-19-related media environment full of misinformation about every aspect of COVID-19, from its origin and prevention strategies, to treatments and vaccine safety (Merchant, South, & Lurie, 2021). Belief in misinformation led to lower risk perceptions associated with COVID-19, and resulted in negative consequences (e.g., not following public health guidance), particularly among conservatives (Calvillo et al., 2020). Research suggests liberals and conservatives might also see the relationship between conservation and COVID-19 differently, and these differences are reflected in how each group perceives the validity of science related to

addressing zoonotic diseases. For instance, liberals tended to perceive the science surrounding zoonotic disease as more valid when solutions were framed around conserving wildlife habitat and establishing protected areas, whereas conservatives perceived it as more valid when solutions were framed around wildlife population monitoring and control (Beall et al., 2021). Second, the convergence of the COVID-19 pandemic and the 2020 US presidential election provided a unique opportunity to understand how the pandemic influenced the importance of conservation-related election issues among US adults when political issues were most salient. For example, COVID-19 likely influenced the importance of all issues in the 2020 election (i.e., the economy, healthcare, etc.), but it may have brought specific attention to issues related to wildlife and conservation because the virus itself is a zoonotic disease.

The politicization of COVID-19, paired with the 2020 election cycle in the US, may contribute to the polarization of conservation issues. Shortly after the first recorded cases of COVID-19 outside mainland China, the pandemic quickly became a polarized issue not only in the US, but throughout the western world (Bruine de Bruin et al., 2020; Jungkunz, 2021; Mordecai & Connaughton, 2020). In the US, conservation issues related to the pandemic's origin were mentioned by major news networks and government officials; however, trust in these communications varied significantly based on political ideology and preferred media source (Calvillo et al., 2020; Gollwitzer et al., 2020). Compared to liberals, conservatives were less likely to believe the reports that human-wildlife interactions at wet markets were the origin of COVID-19 (Beall et al., 2021), and they were much more likely to believe theories such as COVID-19 being developed intentionally in a lab (Schaeffer, 2020). The belief that COVID-19 originated from human-wildlife interactions was also associated with news media sources on which consumers rely for information. For example, viewers of Fox News (a conservative leaning news source) were less likely to believe COVID-19 moved from animals to humans, whereas viewers of CNN (a more liberal leaning news source) were more likely to believe COVID-19 moved from animals to humans (Gibson et al., 2021). As time progressed, communication about the origins of COVID-19 was rapidly buried by political debates over masks and vaccination (Gollust et al., 2020; Hatcher, 2020). Additionally, polarized opinions surrounding COVID-19 and the threat posed by wildlife disease may contribute to politicization of other wildlife issues such as endangered species conservation, thus making consensus building around conservation priorities more difficult and undermining the already limited resources devoted to supporting conservation.

In this study, we used a national survey of US adults to explore the influence of the COVID-19 pandemic on prioritization of conservation issues and the political polarization associated with support and concern for conservation. The study centered on two primary research objectives. Our first objective was to determine the relative importance of conservation related election issues among all US adults and across political ideologies, and how COVID-19 may have impacted relative importance. Our second objective was to determine if COVID-19 increased or decreased political polarization over conservation issues by impacting relative importance differentially across the political spectrum.

2. Methods

We used *Qualtrics XM* to collect a nationally representative sample of 1,560 U.S. residents during August 2020. *Qualtrics* draws potential respondents from a list of U.S. residents who sign up to participate in online surveys through the *Qualtrics* website, and allows rapid data collection (critical during COVID-19) while still approximating a national probability sample in terms of demographic and political representativeness (Beall et al., 2021; Boas et al., 2020). Respondents in this study were drawn from a national pool (50 states plus Puerto Rico), with quotas for region (South, West, Midwest, Northeast), race/ethnicity

(White, Hispanic, Black, Asian), age (18–34, 35–54, 55+), and political ideology. Political ideology was assessed using a scale adapted from prior studies, with response options including Conservative Republican, Liberal/Moderate Republican, Independent/Other, Moderate/Conservative Democrat, and Liberal Democrat (Leiserowitz et al., 2019, 2020). To control for response quality, we included a trap question requiring respondents to select a specified response to confirm they were reading each question carefully. We also checked completed responses for straightlining (Wardropper et al., 2021).

To assess how important various election issues were to respondents and how COVID-19 impacted their importance, we presented respondents with 14 policy issues receiving attention in the 2020 US presidential election. Twelve issues, including two environmental issues (Environmental Protection and Global Warming; Table 2), were considered in the “Politics & Global Warming” reports compiled by Yale and George Mason University (2019, 2020). We also added two novel and more specific wildlife conservation issues (Endangered Species and Controlling Diseases from Wildlife) that might be particularly salient in the COVID-19 context. Respondents were asked on a 4-point scale “How important is this issue as you decide who you will vote for in the 2020 Presidential election?” Response options ranged from “Not important at all” to “Very important to my vote.” To assess mean change in issue importance due to COVID-19 respondents were asked on a 5-point scale “Did the coronavirus outbreak make this issue more important or less important for you?” Response options ranged from “Much less important to my vote” to “Much more important to my vote,” with a “No impact on its importance” option centering the scale. Response scales were adapted from prior studies (Leiserowitz et al., 2019, 2020).

We used descriptive statistics to understand the demographic makeup of respondents within each political ideology category. To address our first research objective, determining how important each 2020 election issue was to respondents across the political spectrum, we ranked issues based on mean importance score among all respondents and within each political ideology group. For all 14 election issues, we used one-way ANOVAs and post-hoc Tukey’s Honest Significant Difference (HSD) to test for significant differences in mean importance between respondents in political ideology groups. To determine if the COVID-19 outbreak made each election issue more or less important to respondents, we calculated the mean change in importance due to COVID-19 within each political ideology group and tested for significant differences using one-way ANOVAs and post-hoc Tukey’s HSD.

To address our second research objective, determining if COVID-19 contributed to issue polarization, we performed a two-part analysis, testing for significant differences in mean change in importance due to COVID-19. First, we dichotomized the political ideology groups, testing for significant differences between all Democrats and all Republicans. This was performed by calculating the mean change in importance due to COVID-19 among all Democrats (Liberal Democrats and Moderate/Conservative Democrats) and the mean change in importance due to COVID-19 among all Republicans (Conservative Republicans and Moderate/Liberal Republicans). We then calculated the difference between mean Democrat and mean Republican responses for each election issue and used Welch’s two sample t-tests to evaluate the significance of these differences. This analysis identified election issues where the mean change in importance due to COVID-19 was significantly different between Democrats and Republicans. We chose to focus on these two groups because they represent the two major voting blocs within US politics. Second, we explored issue polarization by testing for significant differences in mean change in importance due to COVID-19 among all respondents in the original five political ideology groups. This analysis used ANOVA and post-hoc Tukey’s HSD to determine if the polarization occurred across the political gradient or just among the most conservative and liberal respondents. It also allowed us to measure differences between independents and respondents in the four other political ideology groups. The NC State Institutional Review Board approved this study (IRB #21226).

Our study utilized a retrospective pre-post study design. Unlike a traditional pre-post design which elicits responses both before an event (pre-test) and after an event (post-test), a retrospective pre-post study elicits both pre-test and post-test responses during or after the event has occurred. This approach requires respondents to remember their opinions prior to the beginning of an event (COVID-19 in this study) and asks them to respond to questions regarding their initial opinions and change in opinion (Geldhof et al., 2018; Howard, Ralph, et al., 1979; Howard, Schmeck, et al., 1979; Howard & Dailey, 1979). For example, we asked respondents “Did the coronavirus outbreak make this issue more important or less important for you?” which required them to internally evaluate their stance on each issue before COVID-19 and compare it to how important they considered the issue at the time of survey administration. Collecting traditional pre-post data about election issue importance was not possible in this case because the COVID-19 pandemic was not a planned event. In this study, the retrospective pre-post study design allowed us to collect data even though pre-COVID data were not available. In general, it also allows researchers to reduce cost and time burdens, and reduces response-shift bias where respondents conceptualization of a program or event changes over time because of learned knowledge or lived experience (Geldhof et al., 2018; Howard, Ralph, et al., 1979; Howard, Schmeck, et al., 1979; Howard & Dailey, 1979). However, this study design also has potential drawbacks including introduction of recall bias, where accuracy of memories declines over time (Hill & Betz, 2005; Schwartz & Sprangers, 2010), and potential acquiescence bias, where respondents provide answers they believe are desired by the researcher (Sibthorp et al., 2007).

3. Results

Approximately 40% of respondents identified as Democrats (including both Liberal and Moderate Democrats), 36% identified as Republicans (including both Moderate and Conservative Republicans) and 24% identified as Independent/Other. Mean age among all respondents was 45 ($SD = 17.6$), and was generally consistent across all political ideology groups (Table 1). The percentage of male respondents and white respondents increased as respondents became more conservative (Table 1).

Among all respondents, issues related to conservation and the environment ranked low among the 14 election issues in the 2020 election. Environmental Protection ranked 10th, Global Warming 12th, Controlling Diseases from Wildlife 13th, and Endangered Species last (14th). However, these rankings varied based on political ideology (Table 2). Liberal Democrats placed significantly more importance on conservation-related election issues than their independent and conservative counterparts (Fig. 1). Moderate Democrats also placed significantly more importance on environmental-related election issues than their independent and conservative counterparts. An exception was Controlling Diseases from Wildlife and Endangered Species, where Moderate Democrats and Moderate Republicans had similar scores (Fig. 1).

Respondents from across the political spectrum reported the COVID-19 pandemic increased the importance of all 14 election issues (Fig. 2). Mean reported change in importance across all 14 issues was +0.69 ($SD = 1.09$, Scale: -2 to 2). Healthcare had the largest mean increase in importance ($\Delta 1.03$, $SD = 1.02$) and Endangered Species had the lowest mean increase in importance ($\Delta 0.36$, $SD = 1.06$). Among all respondents, the average reported importance of conservation issues increased in association with the COVID-19 (Fig. 2). Controlling Diseases from Wildlife experienced the largest increase in mean importance among the conservation issues ($\Delta 0.57$, $SD = 1.11$) and this increase was the 10th largest among the 14 election issues (Fig. 2). Change in importance for Environmental Protection ranked 12th ($\Delta 0.53$, $SD = 1.06$), Global Warming 13th ($\Delta 0.45$, $SD = 1.12$), and Endangered Species 14th ($\Delta 0.36$, $SD = 1.06$). Democrats (both Liberal and Moderate) and Moderate Republicans reported larger increases in importance

Table 1

Respondent demographics, broken down by political ideology, within a nationally representative sample of US residents collected August 2020 (N = 1560).

	Political Ideology Group				
	Liberal Democrats	Moderate/Conservative Democrats	Independents/Other	Liberal/Moderate Republicans	Conservative Republicans
Percent of Respondents (Count)	19% (290)	21% (333)	24% (379)	13% (207)	23% (351)
Mean Age (SD)	42.9 (18.1)	44.7 (17.9)	43.2 (17.7)	42.6 (14.6)	50.6 (17.1)
Percent Male	40%	42%	42%	62%	65%
Percent White	44%	44%	55%	73%	84%

Table 2

Election issue importance ranking for the 2020 US Presidential election among respondents in a nationally representative sample of US residents collected August 2020 (N = 1560).

Rank ^a	Political Ideology Group				
	Liberal Democrats	Moderate/Conservative Democrats	Independents/Other	Liberal/Moderate Republicans	Conservative Republicans
1	Healthcare	Healthcare	Healthcare	The Economy	The Economy
2	Education	The Economy	The Economy	Healthcare	Illegal Immigration
3	Race Relations (Tie)	Unemployment	Education	Unemployment	Terrorism
4	Environmental Protection (Tie)	Social Security	Unemployment (Tie)	Social Security	Social Security
5	Global Warming	Education	Social Security (Tie)	Education	Healthcare
6	Unemployment	Race Relations	Race Relations	Federal Budget Deficit	Federal Budget Deficit
7	The Economy	Global Warming	Federal Budget Deficit	Terrorism	Unemployment
8	Social Security	Environmental Protection	Terrorism	Illegal Immigration	Education
9	Gun Policies	Gun Policies	Gun Policies	Gun Policies	Gun Policies
10	Controlling Diseases from Wildlife	Terrorism	Environmental Protection	Race Relations	Environmental Protection
11	Endangered Species	Federal Budget Deficit	Illegal Immigration	Environmental Protection	Race Relations
12	Federal Budget Deficit	Controlling Diseases from Wildlife	Global Warming	Controlling Diseases from Wildlife	Controlling Diseases from Wildlife
13	Terrorism	Illegal Immigration	Controlling Diseases from Wildlife	Global Warming	Endangered Species
14	Illegal Immigration	Endangered Species	Endangered Species	Endangered Species	Global Warming

Note: Colors indicate issues related to conservation and the environment.

^a Rank based on mean importance score within each political ideology group.

for all conservation related election issues compared to Independents and Conservative Republicans.

Political polarization surrounding the perceived reported importance of conservation issues increased in the wake of COVID-19 (Table 3). Mean difference in importance due to COVID-19 was greatest for Global Warming, suggesting COVID-19 had the most polarizing impact on this issue with a mean difference in importance of 0.75 ($t = 8.25, p < 0.001$) between Democrats and Republicans. Global Warming was followed by Race Relations (0.68, $t = 7.42, p < 0.001$), Healthcare (0.55, $t = 6.68, p < 0.001$), and Education (0.47, $t = 5.53, p < 0.001$). Controlling Diseases from Wildlife was the fifth most polarizing election issue due to COVID-19, with a difference in importance of 0.45 ($t = 4.93, p < 0.001$) between Democrats and Republicans. Endangered Species ranked 6th with a mean difference in importance of 0.44 ($t = 4.27, p < 0.001$), and Environmental Protection ranked 8th with a mean difference of 0.38 ($t = 4.36, p < 0.001$). Excluding Terrorism and Illegal Immigration, the mean difference in importance for all issues reflected Democrats placing more importance on them relative to Conservatives (Table 3). Conservatives placed more importance on Illegal Immigration as a result of COVID-19. Illegal Immigration ranked 9th and had a mean difference in importance of 0.26 ($t = -2.82, p = 0.005$; Table 3).

When broken into the five political ideology groups, the polarization among importance rankings observed between Democrats and Republicans across the four issues related to conservation and the environment was primarily driven by the most Conservative Republicans and the most Liberal Democrats (Fig. 3). Moderate Republicans and Moderate Democrats reported similar changes in importance due to

COVID-19 for all four conservation issues, whereas Conservative Republicans and Liberal Democrats reported larger differences in association with COVID-19 (Fig. 3). Terrorism was the only election issue where change in issue importance due to COVID-19 was minimal and independent of political ideology (Fig. 3).

4. Discussion

Political differences were evident in the importance ranking of issues related to conservation and the environment during the 2020 US election. Conservative Republicans reported lower importance of conservation issues, and progressively smaller changes in perceived importance of conservation during the COVID-19 pandemic, than Liberal Democrats. These patterns matched those observed before and leading up the 2020 election, suggesting liberal voters consistently place significantly more weight on issues related to conservation and the environment than their conservative counterparts (Pew Research Center, 2020a). Pairing this known divide with COVID-19 and COVID-19 scientific communications, it is therefore understandable that liberal's trust in science (Beall et al., 2021), trust in mainstream news media (Gibson et al., 2021), and disbelief in misinformation (Calvillo et al., 2020) would result in an increased reported change in conservation issue importance during the pandemic. This change may be driven by a better understanding of both COVID-19's connection to human-wildlife interactions as well as other conservation issues (e.g., establishment and protection of natural areas) that are fostered by news media that focus on environmental topics (Gibson et al., 2021). We also found overlap

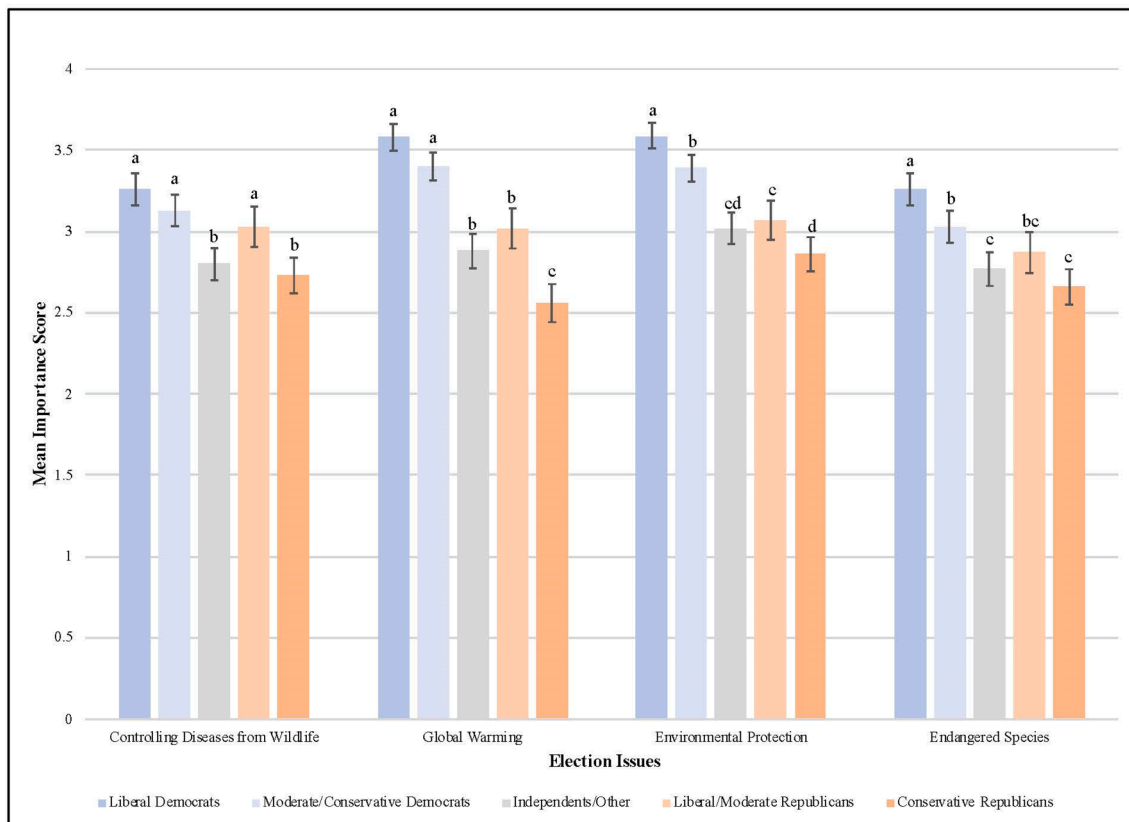


Fig. 1. Mean importance score (range 0–4) of issues related to conservation and the environment within the 2020 US Presidential election by political ideology, with 95% confidence intervals. Respondents were sampled as part of a nationally representative sample of US residents, collected August 2020 ($N = 1560$). *Note:* Letters represent unique groups defined by Tukey HSD pair-wise comparisons.

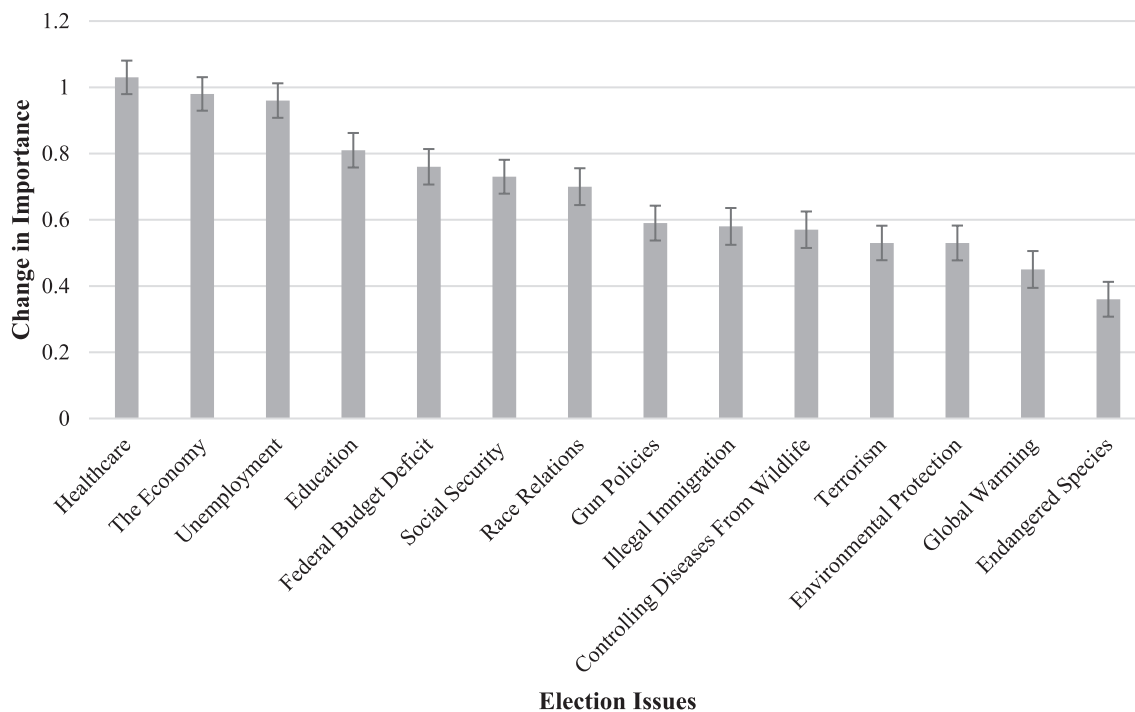


Fig. 2. Mean change in election issue importance as a result of COVID-19, with 95% confidence intervals, among all respondents within a nationally representative sample of US residents, collected August 2020 ($N = 1560$).

Table 3

Election issue polarization as a result of COVID-19, from most polarized to least polarized. Polarization was measured between Democrats and Republicans within a nationally representative sample of US residents, collected August 2020 (N = 1560).

Rank	Election Issue	Mean change between Democrats & Republicans
1	Global Warming	0.75 ***
2	Race Relations	0.68 ***
3	Healthcare	0.55 ***
4	Education	0.48 ***
5	Controlling Diseases from Wildlife	0.45 ***
6	Endangered Species	0.44 ***
7	Unemployment	0.40 ***
8	Environmental Protection	0.38 ***
9	Illegal Immigration	0.26 **
10	Gun Policies	0.25 **
11	The Economy	0.14
12	Terrorism	0.11
13	Federal Budget Deficit	0.10
14	Social Security	0.10

Welch’s *t*-test significance levels: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Note: Red indicates greater importance to Republicans because of COVID; Blue indicates greater importance to Democrats because of COVID; Gray indicates no significant change in importance between Democrats and Republicans.

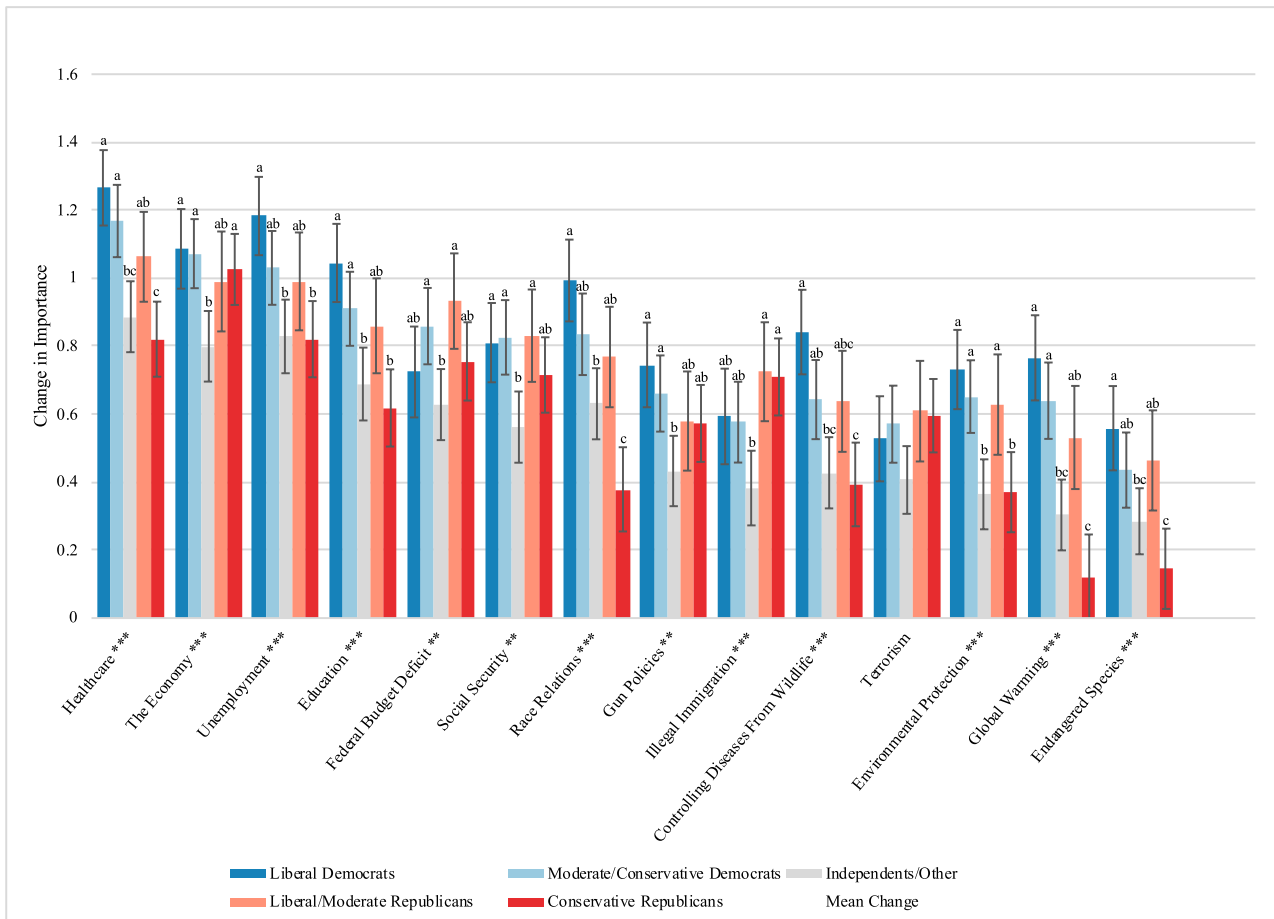


Fig. 3. COVID-19’s impact on election issue importance. Mean change in importance with 95% confidence intervals presented by political ideology among respondents within a nationally representative sample of US residents, collected August 2020 (N = 1560). ANOVA significance levels: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$ Note: Letters represent unique groups defined by Tukey HSD pair-wise comparisons.

between the reported change in conservation issue importance due to COVID-19 among Moderate Republicans and Moderate Democrats. This likely reflects responses from voters who may be less susceptible to ideological polarization compared to their more extreme Conservative Republican and Liberal Democrat counterparts (Adams et al., 2017).

The COVID-19 pandemic appeared to exacerbate the polarization of conservation issues within the 2020 election cycle in the US. Political bias, skepticism of science, and lack of trust in traditional news media may explain why conservation issues were more polarized as a result of COVID-19 compared to other topics, such as the economy or terrorism (Beall et al., 2021; Calvillo et al., 2020; Gollwitzer et al., 2020). For example, COVID-19 and other zoonotic diseases are inherently connected with human-wildlife interactions and natural resource conservation (Gibbons et al., 2021). This connection, when paired with partisan media coverage on COVID-19 and its origin, and political divides in beliefs about the validity of science communication and public health recommendations, might have further widened well-established political differences among conservative and liberal voters regarding conservation issues (Beall et al., 2021; Calvillo et al., 2020; Gibson et al., 2021; Gollwitzer et al., 2020). However, wildlife conservation issues were less polarized as a result of COVID-19 than issues deeply rooted in conservative/liberal ideology, including environmental issues such as climate change and social issues such as healthcare and race relations. This may be because issues such as healthcare and climate change were the subject of raging ideological debates prior to the pandemic (Pew Research Center, 2019), and were thus situated most directly in the path of partisan frustrations created by COVID-19. These results suggest communication aimed at consensus building may be required to prevent polarized opinions surrounding COVID-19 from trickling down and contributing to politicization of other conservation issues. Such efforts are timely and critical as consensus building at all levels of government becomes more difficult.

Polarization of conservation issues during the COVID-19 pandemic is particularly troubling when paired with our finding that conservation issues were considered relatively unimportant by citizens across the political spectrum. The average reported importance of conservation issues increased in association following COVID-19 for all respondents, but it still ranked far behind other election issues such as healthcare and the economy. This reality means those managing wildlife diseases and endangered species face the burdens of political posturing without the constant pressure for action associated with partisan - but relatively more important - issues such as healthcare, race relations, immigration, and even climate change. Pressing impacts from COVID-19 and a contentious election cycle may have also deflected public concern about the wildlife-related origins of COVID-19. This pattern of relegation may be explained by a theory of finite pools of worry, which suggests that because people have limited capacity for worrying about issues, large increases in concern about one type of risk (e.g., health risks linked to COVID-19) tend to reduce concern about other risks (Columbia University, 2009; Weber, 2006). For example, by April 2020, most Americans claimed they were concerned about COVID-19 (Leiserowitz et al., 2020), and this concern likely revolved around an individual's (and their family's) health and safety, their job security, and their social well-being, as well as community concerns including hospital capacity, vaccine development, and public health regulation compliance (Pew Research Center, 2020d, 2020b). In the US, conservation issues were likely further marginalized by hyper partisanship surrounding the high-profile presidential election of 2020. All 14 election issues we studied became more important during this time, but this was especially true for healthcare and economic issues - two focal topics within the 2020 presidential election that drew substantial attention among the US electorate (Pew Research Center, 2020b). In combination, all of these factors may have drawn significantly from voters' pools of worry, therefore limiting concern for other COVID-19 related issues such as the need to promote positive human wildlife interactions to prevent future pandemics. Ultimately, increasingly frequent and severe natural

disasters mean conservationists must be equipped to compete for attention with other crises for the foreseeable future (Viña et al., 2011).

Our results yield several insights that could help build public support for conservation-related election issues and leverage conservation interventions to mitigate or prevent future pandemics. First, public health communication failures associated with COVID-19, such as focusing on proximate causes and attempting to report both sides of all issues (Gollust et al., 2020), likely had indirect and unanticipated cascading effects on conservation. Thus, the conservation community must build better connections to mainstream media. Conservation stakeholders including the World Wide Fund for Nature (formerly the World Wildlife Fund) developed substantial media content early in the pandemic that highlighted links between wildlife trade, wildlife markets, food insecurity and mitigating risks from COVID-19 and future pandemics (World Wide Fund for Nature, 2020), but this content did not gain traction in large scale media. Building networks with mainstream media, however, may be insufficient.

The polarization over conservation issues such as wildlife disease management suggests communication products must be developed with audience ideology in mind. For example, simple and direct communication that conveys the cause, impact, and potential solutions for conservation challenges, but carefully avoids issues and messages linked to ideological triggers such as protected areas (Beall et al., 2021), may be broadly effective. In the context of zoonotic disease, this may mean messages that describe connections between wildlife and disease outbreaks, including the widespread and serious impacts caused by zoonotic diseases and the role that effective conservation can play in preventing future outbreaks (Beall et al., 2021). One Health approaches to zoonotic disease communication may be effective ways to highlight the interconnectedness of humans, wildlife, disease, and the environment. One Health uses an interdisciplinary approach to balance the health of wildlife, humans, and the environment, and is recognized by important global health institutions (e.g., WHO, CDC, FAO; Buttke, Decker, & Wild, 2015). Such communications should objectively appeal to wide audiences and may generate bipartisan support among constituents (Kidd et al., 2019). Successful examples using this communication model include those leading to Montana's Game Farm Reform Initiative (I-143), which passed in 2000 and helps control the spread of wildlife disease by prohibiting the establishment of new game farms (Holmquist, 2001), and the proposed Preventing Future Pandemics Act of 2021 (H. R.151), which would establish measures to address global public health risks posed by wildlife markets (Preventing Future Pandemics Act of 2021, 2021).

Strategically framing communications may be critical when engaging audiences on either end of the ideological spectrum (Beall et al., 2021; Kahan et al., 2015; Wolsko et al., 2016). Strategic framing and distribution of wildlife disease science and information that aligns with particular audiences' values and worldviews has the potential to boost trust in conservation science needed to prevent and mitigate future wildlife-related pandemics (Beall et al., 2021; Gregg et al., 2021). For example, messages intended for ideologically conservative audiences may focus on building support for better monitoring of disease and manipulation of wildlife populations, whereas messages intended for ideologically liberal audiences may focus on habitat protection and government programs to reduce food insecurity (Beall et al., 2021).

Future research is needed to address several limitations of this study. Notably, we used a retrospective study design, and this method raises concerns about recall bias (Bell et al., 2019). Panel research could address this limitation but may be difficult given that it would require predicting the next pandemic or major event to shape the relative prioritization of conservation issues. We used Qualtrics to approximate a nationally representative study using demographic and political affiliation quotas. This approach was chosen because it allowed for rapid data collection, a critical need during the emergence of COVID-19, and has been demonstrated to work well with political polling data; however, future studies should strive for a larger, simple random sample of US

residents (Callegaro et al., 2014). Additional demographic and behavioral data, including geographic indicators (e.g., ZIP codes) and media consumption preferences would also allow for a more complete analysis of underlying factors influencing prioritization and polarization of election issues. Similarly, future research in other countries is needed to determine the degree to which inferences about the relative importance and polarization of conservation issues apply in other nations, and how those global priorities might have been altered by the COVID-19 pandemic.

5. Conclusion

This study suggests the COVID-19 pandemic may have contributed to the polarization of conservation issues in the US, widening the divide in perceived issue importance between conservative and liberal voters. Our results demonstrate that, during the 2020 US election, Americans were less likely to prioritize conservation and the environment relative to other issues. Although people responded to conservation issues in more polarized ways during the COVID pandemic, those issues remained less partisan and less polarizing than other environmental issues such as climate change, and far less polarizing than social issues such as race relations and healthcare. Additionally, we found overlap between Moderate Republicans and Moderate Democrats; this suggests Moderates may be less susceptible to ideological polarization compared to their more extreme Conservative Republican and Liberal Democrat counterparts. Thus, there may be a window for building consensus, especially among moderate voters, to proactively support and improve conservation efforts before the topic becomes too politically contentious, rendering political action difficult. Globally, these recommendations could help elevate the importance and salience of conservation issues in the public eye, paving the way for international action that could help to prevent and manage future pandemics caused by zoonotic disease.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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