

Green on the outside, red on the inside: Perceived environmentalist threat as a factor explaining political polarization of climate change



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ABSTRACT

Political polarization has been observed on climate change issues, with right-wing adherents more likely to deny climate change and oppose policies aimed at mitigation. Most theory and political discourse frames this divide as being driven by support for economy-driven environmental exploitation on the right. However, consistent with rhetoric characterizing environmentalists as “Communist watermelons” (i.e. green on the outside, red on the inside), we test an *intergroup* explanation for political polarization on climate change attitudes, with the perception that environmentalists are a threat to society also underlying right-wing climate change denial. In an American community sample ($N = 384$), environmentalist threat consistently, strongly, and uniquely accounted for the link between right-wing ideology and opposition to environmentalist policies and climate change denial, over and above views that the environment exists for economic exploitation and other relevant beliefs about the environment. Implications for encouraging climate change mitigation among right-wing adherents are discussed.

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1. Introduction

In 1990, large-scale surveys of Americans indicated that those identifying as Democrat or Republican did not differ meaningfully in terms of support for environmental protection funding. Since that time however, the American populace, like their politicians, has become increasingly polarized toward environmental issues (McCright, Xiao, & Dunlap, 2014), with those on the right increasingly opposing environmental protections. Some have proposed that, after the fall of the Berlin Wall and the Communist threat, environmentalists became the new focus of fear and loathing among right-wing adherents, with the “Green Scare” replacing the “Red Scare” (Jacques, Dunlap, & Freeman, 2008) as the enemy du jour. In fact, environmentalists have been characterized as *watermelons*: green on the outside, but red (Communist/Socialist) on the inside (Oreskes & Conway, 2010; Randerson, 2013). In a contemporary characterization of this perceived threat, George Osborne (UK Chancellor) reportedly used the label “Environmental Taliban” to describe green campaigners; in the US, terms such as “Nazis” and “militants” have similarly been employed (Vidal, 2012; Wright,

2012), with young climate activists in Australia being called “Hitler Youth” (Vidal, 2012). Fred Singer, the so-called “godfather of climate denial”, recently accused President Obama of “pandering to zealots on the Far Left fringe posing as environmentalists” by undertaking an “anti-energy regulatory jihad” (Goldenberg, 2015a). The use of labels ranging from communist to socialist to Nazi to Taliban to jihadist suggests that the purported concern is not necessarily about communist “watermelons” per se, but rather represents a characterization of the environmentalist “outgroup” as destructive and nefarious. At its core, this “watermelon” characterization posits that *environmentalists threaten the Western way of life*.

The characterization of environmentalists as threatening is also demonstrated in ideological *pushback* against environmentalism. For instance, right-wing adherents are less in favor of investing in energy efficient technology, and are less likely to buy energy efficient lightbulbs labeled as “environmentally friendly” (Gromet, Kunreuther, & Larrick, 2013). In reaction to calls to turn off lights during *Earth Hour* in support of the environmental movement, Rush Limbaugh (popular conservative radio host) protested to his audience saying:

I wanted to make sure I could use as much damn power as I could....I turned the thermostats down to 70°, 68° [during hot weather]. I turned on every light in the house! I turned on every

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light in the back yard and aimed 'em down so they wouldn't hit the turtles! I mean, I had my house lit up like a Christmas tree last night. (Mooney, 2015)

Messages by those with environmental concerns, therefore, are not simply rejected, but can be reacted against vehemently and loudly. In the words of Mooney, Limbaugh “thumb[ed] his nose at environmentalists”. Although there are anecdotal examples of pushback against environmentalists, the extent to which perceived threat posed by environmentalists psychologically explains or accounts for left–right differences in environmental concern over climate change is presently unknown empirically. Understanding the role of psychological barriers preventing action on climate change (including ideologies) is key to addressing climate change (Gifford, 2011; Pidgion & Fischhoff, 2011).

1.1. Political ideology and climate change denial

The present investigation addresses several mediating mechanisms that might explain *why* right-wing (vs. left-wing) adherents differ in beliefs about the causes of climate change and whether collective action ought to be taken. At present, there exists clear objection to recognizing human-caused climate change among right-leaning political elites in the US (Kliegman, 2014), a trend mirrored in the general population. Compared to liberals, conservatives consider climate change less risky and dangerous ($r = -.40$; Choma, Hanoch, Gummerum, & Hodson, 2013). Conservatives are also less likely to believe that there is scientific consensus on climate change, with this skepticism about scientific consensus linked to climate change denial (van der Linden, Leiserowitz, Feinberg, & Maibach, 2015). Moreover, right-wing adherents are in greater denial about whether climate change is happening or caused by human activity (e.g., Campbell & Kay, 2014; Feygina, Jost, & Goldsmith, 2010; Guy, Kashima, Walker, & O'Neill, 2014; Häkkinen & Akrami, 2014; Heath & Gifford, 2006; Lewandowsky, Oberauer, & Gignac, 2013; Rossen, Dunlop, & Lawrence, 2015; Tjernström & Tietenberg, 2008; Whitmarsh, 2011). Situational factors can exacerbate these differences. For instance, Campbell and Kay (2014, Study 2) found that Republicans were particularly likely to deny climate change when the solutions to climate change were portrayed as limiting free-market capitalism, consistent with a psychological pushback. Milfont and Sibley (2014) discovered that Social Dominance Orientation (a component of right-wing ideology that emphasizes intergroup hierarchy) was more strongly related to support for environmental exploitation when the exploitation was framed as benefitting wealthy investors. In contrast, political polarization toward climate change was decreased when geo-engineering (a non-politicized solution) was proposed (Kahan, Jenkins-Smith, Tarantola, Silva, & Braman, 2015), a generalized effect found in US and English samples. Further, climate change denial can be partially accounted for by conspiratorial thinking on the right (Lewandowsky, Gignac, & Oberauer, 2015; Lewandowsky et al., 2013), which also suggests motivated reasoning. Overall, such findings suggest that environmental attitudes are to some degree ideologically driven.

Consistent with this proposition, McCright and Dunlap (2011) examined yearly Gallup polls between 2001 and 2010 in their “Cool Dudes” analysis, finding that those most in denial about climate change were White conservative men. Troublingly, these group differences were exaggerated (not diminished) among “cool dudes” who self-reported knowledge about global warming. The authors argued that system justification processes (Jost & Banaji, 1994; Jost, Nosek, & Gosling, 2008) potentially underlie these findings. That is, White conservative men have a stake in

maintaining a status quo that favors their group, expressed through a motivated disinterest in acknowledging scientifically established findings. In a large sample of undergraduates, Feygina et al. (2010, Study 2) confirmed this proposition: those identifying as conservative (vs. liberal) expressed greater climate change denial ($r = .40$), an effect partially mediated (i.e., explained) by their greater endorsement of both general and economic system justification beliefs that rationalize the status quo (see also Rossen et al., 2015). Such findings reveal sizeable differences between those on the left and right. With correlations in the .40 range, associations between left-vs-right wing adherence and climate change represent moderate-to-large effects in psychological terms (Cohen, 1988), with few psychological effects approaching this magnitude (Hemphill, 2003).

Perhaps more troublingly, as we surpass manageable levels of atmospheric carbon (i.e. 350 ppm; NOAA, 2015) and approach levels associated with greater-than-2 °C global temperature increase (i.e. 450 ppm; Hansen et al., 2008; Rockstrom et al., 2009), the ideological divide and divergence of opinion intensifies. In an analysis of attitudes toward environmental protection spending spanning 1974–2012 (General Social Survey), Americans mirrored the patterns observed among their political leaders, with conservatives increasingly reluctant to spend on the environment (McCright, Dunlap, & Xiao, 2014). Thus, Americans are becoming increasingly polarized politically with regard to climate change. In fact, when prioritizing government objectives the US population is presently more polarized over *dealing with climate change* and *protection of the environment* than any other political issue (Pew Research Center, 2015). Research on the effectiveness of climate change education has been mixed, with some studies finding that education is effective regardless of politics (Kahan et al., 2012), others finding that education is most effective among those with less extreme attitudes (Myers, Maibach, Roser-Renouf, Akerlof, & Leiserowitz, 2012; Raimi & Leary, 2014), and others that education may even *increase* political polarization by increasing climate change concerns among those already somewhat concerned while bolstering initial denial beliefs (McCright & Dunlap, 2011; Myers et al., 2012). To the extent that scientific information and education are not consistently effective (and may backfire), resistance may be political in nature, in keeping with a motivated system justification perspective (Jost, Glaser, Kruglanski, & Salloway, 2003; see also Campbell & Kay, 2014).

1.2. Mechanisms potentially explaining differences in climate change attitudes

There exist strong theoretical reasons that the perceived threat from environmentalists, as a social category or group, might explain why ideologies predict climate attitudes. Conservatives are more sensitive to threat, particularly perceived threats to the status quo and social order (Jost et al., 2007), and characterizations of environmentalists as “Communists” and “terrorists” certainly conjure up images of dire threats. The intergroup literature has long contemplated how perceived threats from an outgroup predict negative attitudes toward the groups. For instance, the Integrated Threat Theory of Prejudice (Stephan & Stephan, 2000) posits that situational factors (e.g., group conflict or contact) predict attitudes toward an outgroup (e.g., Blacks) through several types of threat, including realistic threat (i.e., tangible, objective), symbolic threat (non-tangible, subjective and/or cultural), intergroup anxiety (i.e., awkwardness and unease around the group), and negative stereotyping (i.e., expectancies that outgroup will be hostile or anti-outgroup). From this perspective, feeling threatened by outgroups goes a long way to explaining anti-outgroup expressions (see Hodson, Esses, & Dovidio, 2006), a proposition well-supported

meta-analytically (Riek, Mania, & Gaertner, 2006). As such, several prominent prejudice theories emphasize the symbolic (i.e., way-of-life) threats that Blacks, minorities, or immigrants purportedly pose to American Whites. From this perspective, the dominant group does not emphasize explicitly negative outgroup attitudes per se, but rather promotes ingroup values (e.g., work-ethic, respect for traditional authority) while emphasizing that such values are threatened by the subordinate group (McConahay & Hough, 1976; Sears, 1998). Here, groups become opposed because of the value threat supposedly imposed, resulting in pushback in the form of policies that disfavor the disempowered outgroup. Feelings that the outgroup is getting too pushy, demanding, or receiving of attention often therefore reflect deeper animosity.

Recently researchers have applied such reasoning outside of the race domain. For example, Maclinnis and Hodson (in press) sought to explain why right-wing adherents, relative to left-wing adherents, hold relatively negative attitudes toward vegans and vegetarians (i.e., those endorsing plant-based diets). As predicted, the potential cultural threat (i.e. way of life) perceived to be posed by vegans/vegetarians fully explained why right- (vs. left-) wing adherents oppose the outgroup, accounting for 60–100% of the effect. Of particular interest to the present investigation, Dhont and Hodson (2014) sought to explain why right- (vs. left-) wing adherents are more willing to exploit animals and consume meat, a topic relevant to animal welfare as opposed to the overall health of the biosphere. Across two studies in Belgium, relations between right-wing attitudes and animal attitudes were largely explained by two factors: (a) the threat posed by vegetarianism to a traditional, meat-eating way of life; and (b) human supremacy over animals (i.e., animals as inferior to humans; disinterest in treating animals more equally). Interestingly, in the second study the authors assessed the hedonic pleasure in eating meat; the effects of ideology on animal consumption through a *pushback* against vegetarianism remained even after controlling for pleasure from meat-eating. Such findings highlight the ideological nature of resistance to protecting animals, rooted in hierarchy and traditional values, consistent with related findings concerning ideological dominance over the environment more generally (e.g., Milfont, Richter, Sibley, Wilson, & Fischer, 2013). In the present investigation of American respondents, we propose and test the notion that, relative to left-wing adherents, those on the right are similarly resistant to accepting climate change as real and needing action, in large part through pushback against the way-of-life threat perceived imposed by “watermelons” (i.e., environmentalists).

Recent theorizing and research on the psychology of climate change attitudes suggests several other mechanisms relevant to our discussion. In particular, Milfont and Duckitt (2006, 2010) have developed measures to tap several dimensions of environmentalist attitudes (i.e., toward the environment itself, and its protection). One broad theme involves *utilization*, the belief that the environment can and should be used for human purposes. Their utilization subscale strongly emphasizes the importance of the economy and jobs (e.g., “The question of the environment is secondary to economic growth”; “Protecting people’s jobs is more important than protecting the environment”). This utilization factor is particularly important to our discussion of ideological divides, we argue, in part because economic concerns are central to the political discourse, relevant to maintaining the status quo rather than enacting regulation, restrictions, or change (Speaker Boehner’s Press Office, 2015; McConnell, 2015). Beliefs about the utilization of nature that primarily focus on economic issues may therefore explain ideological differences in climate change beliefs.

Relatedly, Milfont and Duckitt (2010) have developed a *human dominance over nature* measure. Higher scores in this construct represent the belief that humans are above the rest of nature, and

that nature exists for the purpose of exploitation by humans. Sample scale items include: “Plants and animals exist primarily to be used by humans” and “Humans were meant to rule over the rest of nature.” To the extent that right-wing adherents may endorse such beliefs more strongly, this construct might also explain their resistance to recognizing climate change. In contrast to more economic concerns, dominance over nature is rarely employed directly by politicians as a speaking point, but may nonetheless explain left–right differences in climate change denial. Theoretically, this construct is related to Dhont and Hodson (2014) human supremacy beliefs, found to mediate relations between right-wing attitudes and willingness to eat animals and use them for entertainment etc. Within the context of predicting climate change beliefs, Milfont and Duckitt’s human dominance over nature scale is therefore theoretically relevant to consider as a potential mediator.

Finally, Milfont and Duckitt (2006, 2010) also propose that environmental beliefs can concern preservation of nature itself, that is, valuing natural diversity and biospheres. We utilized Perkins (2010) measure of *love and care for nature* to tap personal and emotional attachment to nature, including valuing nature’s intrinsic value and sense of awe. Presumably, those scoring higher on such a measure may express more concerns over environmental issues (e.g., Markowitz, Goldberg, Ashton, & Lee, 2012), although it is less clear that a left–right divide would be observed for such a measure (see Dietz, Fitzgerald, & Shwom, 2005; Perkins, 2010). We nonetheless include this variable as a potential mediator.

1.3. Denial of climate change and resistance to mitigating action

Our interest lies in explaining ideological differences in three related but distinct beliefs about the environment. First, we seek to predict support for policies to take action to curb climate change, in particular the notion that governments should control and regulate industry and development, and fund alternative energy sources. Those scoring higher on such an outcome believe that public resources ought to be directed toward solving the climate problem and slowing down its occurrence. Second, we seek to predict denial that climate change is *occurring*. Third, we seek to predict denial that climate change is *caused by human activity*. These last two are related but distinct. Theoretically, a person could accept that climate change is happening but attribute change to natural variations (i.e., non-human). Indeed, the US Senate recently acknowledged that climate change is happening, yet not that human causes are responsible, with the majority of Republicans voting against acknowledgment of a human cause (Goldenberg, 2015b; United States Senate, 2015a, 2015b). Of note, measures that attributed climate change to human activity were voted down, behavioral evidence of denial with real-world implications.

1.4. The present research

In the present research, we seek to examine the extent to which perceptions of *environmentalists* as threatening can account for political polarization of climate change issues, above and beyond beliefs about the *environment* (i.e. belief that the environment exists to be exploited and dominated by humans). Such a finding would demonstrate that political polarization toward climate change is not simply a difference of opinion resulting from different worldviews (e.g. the value of protecting the environment vs. growing the economy), but also represents an *intergroup issue*, potentially driven by group identities, group interests, and perceptions of the motivations of those outside the ingroup.

We collected a relatively large US community sample. We focused on four indicators of right-wing adherence to account for potential distinctions between types of right-wing ideologies,

consistent with past research on right-wing adherence and environmental attitudes considering multiple dimensions of right-wing adherence (e.g. Feygina et al., 2010; Häkkinen & Akrami, 2014). Right-wing authoritarianism (RWA; Altemeyer, 1996) represents a construct relevant to being traditional and conventional in outlook and aggressive against norm violators. RWA is a strong predictor of prejudicial attitudes (Altemeyer, 1996, 1988; Hodson & Costello, 2007; Sibley & Duckitt, 2008) and of environmental attitudes (Choma et al., 2013; Milfont, Evans, Sibley, Ries & Cunningham, 2013), including attitudes toward animal exploitation (Dhont & Hodson, 2014; Dhont, Hodson, Costello, & MacInnis, 2014). According to Jost et al. (2003), RWA represents an aspect of right-wing ideologies related to resistance to change and reflects a dimension of conservatism. Social dominance orientation (SDO; Sidanius & Pratto, 1999) is an individual difference variable tapping endorsement of intergroup hierarchies and dominance. As such, it is a strong predictor of prejudicial attitudes (Altemeyer, 1998; Hodson, Rush, & MacInnis, 2010; Sibley & Duckitt, 2008; Sidanius & Pratto, 1999). SDO can be conceptualized as representing an aspect of conservatism relevant to the acceptance of inequality (Jost et al., 2003). Recent research demonstrates the relevance of SDO in exerting dominance over nature (e.g., Dhont & Hodson, 2014). Milfont & Evans et al. (2013), for instance, found that those higher in SDO are more dominant over nature and less caring of the environment.

RWA and SDO are conceptualized as related, yet distinct aspects of right-wing ideology. That is, RWA is driven by viewing the world as dangerous, and SDO is driven by viewing the world as competitive (Duckitt, 2001; Duckitt & Sibley, 2009). Variables such as RWA and SDO are generally considered intergroup in nature (Hodson & Esses, 2005), pertaining to beliefs about how different human social groups ought to behave, that nonetheless have relevance to understanding dominance over animals (Dhont & Hodson, 2014; see also Dhont et al., 2014) or nature (Milfont & Evans et al., 2013).

We also assessed party identification, a commonly used measure of political orientation, asking participants to rate themselves as identifying at strongly Democrat (more left-leaning) to strongly Republican (more right-leaning). Such measures are widely used by polling agencies (e.g., Gallup, Pew) and allow us to situate our findings within a broader framework. Finally, we asked participants to label themselves as liberal versus conservative; this variable correlated relatively strongly with the other three indicators of right-wing adherence and did not uniquely predict any mediators or outcomes (consistent with Häkkinen & Akrami, 2014), and thus is not emphasized in our mediation model tests.

The criteria we sought to predict involved support for policies to curb climate change, denial that climate change is happening, and denial that climate change is caused by humans. In addition to being psychologically interesting, these variables are fundamental to contemporary environmental and public policy debates. We predicted that right-wing (vs. left-wing) adherents, namely those higher (vs. lower) in RWA, SDO, Republican identification, or conservative political orientation would be less willing to support policies that protect the environment and more likely to deny climate change occurrence or human cause. We predicted that these differences between left-versus right-wing adherents would be explained (i.e., mediated) by greater perceived threat posed by environmentalists, greater willingness to utilize nature for economic reasons, greater perceived dominance over nature, and lower love and care for nature. These predictions are tested in a path-model that simultaneously tests these hypotheses, allowing us to isolate unique (i.e., non-overlapping) psychological mechanisms.

2. Materials and methods

2.1. Participants

A US sample of 384 participants (for age, mean = 35.8, $SD = 5.98$, range = 18 to 76; for race, 80% Caucasian, 7% Black, 7% Asian, 4% Hispanic, 2% Other Race; for sex, 46% female) was recruited through Amazon Mechanical Turk. Mturk provides high-quality data, with low levels of random answers and dishonest responses (Paolacci & Chandler, 2014). Mturk participants are somewhat younger, more educated, less religious, more politically liberal, less extroverted, and less emotionally stable than the general population (Paolacci & Chandler, 2014). As such, Mturk samples are not nationally representative, but they are more representative of the general population than university samples (Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014). In terms of political ideology, 50% of participants in this study identified as liberal or liberal-leaning, 22% were at the mid-point of the scale, and 28% identified as conservative or conservative-leaning. In terms of party identification, 50% of participants identified as Democratic or Democratic-leaning, 25% were at the mid-point of the scale, and 24% identified as Republican or Republican-leaning. Thus, consistent with past Mturk samples, our sample leans somewhat liberal and Democratic compared to the general population, yet includes participants across the left–right continuum. Participants completed political ideology and political affiliation measures (presented in random order), followed by mediators (in random order), and then outcome variables (in random order), with demographics assessed at the end.¹

2.2. Measures

2.2.1. Right-wing ideology and identification

Right-Wing Authoritarianism (RWA; 15-item, 7-point measure, $\alpha = .92$): Greater RWA reflects commitment to tradition, preference for conventionality, and submission to authority figures (Zakrisson, 2005; see also Altemeyer, 1998).

Social Dominance Orientation (SDO; 16-item, 7-point measure, $\alpha = .95$): Greater SDO reflects preference for social hierarchies and the maintenance of the present social and economic system (Pratto, Sidanius, Stallworth, & Malle, 1994).

Party Affiliation: Republican (vs. Democratic) affiliation was assessed on a scale ranging from strongly Democrat (1) to strongly Republican (7).

Political Orientation (3-items, $\alpha = .91$): Conservative (vs. liberal) political orientation was assessed by averaging identification as conservative (vs. liberal) in terms of social issues, economic issues, and in general, with responses ranging from strongly liberal (1) to strongly conservative (7).

2.2.2. Mediators

Environmental Threat (12-item, 7-point measure, $\alpha = .96$): This measure taps perceptions that environmentalists and pro-environmental social changes are a threat to society, tradition, and the economy. A sample item reads, “The rise of environmentalism poses a threat to our country’s cultural customs.” (adapted from Dhont & Hodson, 2014; vegetarianism threat measure). See the appendix for the full measure.

Utilization of Nature (10-item, 7-point measure, $\alpha = .91$): This measure taps belief that nature exists to be exploited for human

¹ As a follow-up analysis, we also tested our mediation model with all demographics (sex, age, income, education, race, and religious affiliation) tested as covariates. Inclusion of these covariates did not substantially affect the results, with the exception of a suppression effect (see Footnote 4).

Table 1
Bivariate correlations.

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	M	SD
1. Right-wing authoritarianism	.46***	.64***	.56***	.59***	.51***	.38***	-.09	-.43***	.40***	.39***	3.01	1.27
2. Social dominance orientation	–	.44***	.37***	.57***	.47***	.48***	-.24***	-.50***	.32***	.37***	2.37	1.20
3. Conservative (vs. Liberal) affiliation		–	.83***	.52***	.42***	.36***	-.06	-.43***	.45***	.49***	3.44	1.56
4. Republican (vs. Democratic) affiliation			–	.48***	.38***	.34***	-.07	-.41***	.46***	.52***	3.37	1.72
5. Environmentalist threat				–	.56***	.66***	-.24***	-.78***	.56***	.61***	2.94	1.51
6. Dominance over nature					–	.62***	-.32***	-.47***	.38***	.42***	3.08	1.48
7. Utilization of nature						–	-.44***	-.70***	.43***	.50***	3.38	1.19
8. Love and care for nature							–	.32***	-.13*	-.16**	5.35	1.26
9. Environmental protection support								–	-.54***	-.60***	5.21	1.28
10. Climate change denial									–	.70***	1.99	1.54
11. Denial of climate Change Human Cause										–	2.66	1.77

Note. * $p < .05$ ** $p < .01$ *** $p < .001$.

purposes. A sample item reads, “Protecting peoples’ jobs is more important than protecting the environment.” (Milfont & Duckitt, 2010).

Dominance Over Nature (10-item, 7-point measure, $\alpha = .93$): This measure taps belief that humans are superior to the rest of nature. A sample item reads, “Humans were meant to rule over the rest of nature.” (Milfont & Duckitt, 2010).

Love and Care for Nature (16-item, 7-point measure, $\alpha = .97$): This measure taps a positive emotional connection to nature. A sample item reads, “I feel a deep love for nature.” (Perkins, 2010).

2.2.3. Criteria measures

*Environmental Protection Support*² (10-item, 7-point measure, $\alpha = .92$): Participants indicated support for government interventions aimed at protecting the environment. A sample item reads, “Controls should be placed on industry to protect the environment from pollution, even if it means it will cost more.” (Milfont & Duckitt, 2010).

Climate Change Denial: Participants indicated agreement with the statement “Climate change is real”, with responses ranging from 1 (strongly disagree) to 7 (strongly agree), following Milfont & Richter et al. (2013). Responses were reverse-coded, with higher scores reflecting greater climate change denial.

Denial of Human Cause: Participants indicated agreement with the statement “Climate change is caused by humans”, with responses ranging from 1 (strongly disagree) to 7 (strongly agree), following Milfont & Richter et al. (2013). Responses were reverse-coded, with higher scores reflecting greater denial of human causes of climate change.

3. Results

All analyses were conducted with Mplus version 7.2, utilizing maximum likelihood estimation with robust standard errors (i.e., MLR). Seven participants (<2% of sample) had missing data on at least one exogenous variable, and therefore full information maximum likelihood (FIML) was used to estimate missing data.

3.1. Bivariate correlations

Consistent with the literature, both RWA and SDO were associated with less environmental protection support, more climate change denial, and greater denial of human cause (all $ps < .001$, see Table 1). In addition, both Republican (vs. Democrat) and conservative (vs. liberal) affiliation were also associated with less

environmental protection support, more climate change denial, and greater denial of human cause (all $ps < .001$). RWA, SDO, Republican (vs. Democratic) affiliation, and conservative (vs. liberal) affiliation were each positively associated with environmentalist threat, utilization of nature, and dominance over nature (all $ps < .001$). Environmentalist threat, utilization of nature, and dominance over nature were associated with less environmental protection support, more climate change denial, and more denial of human cause (all $ps < .001$). Only SDO was associated with lower love and care for nature ($p < .001$), whereas RWA, Republican (vs. Democratic) affiliation, and conservative (vs. liberal) affiliation were not related to love and care for nature (all $ps > .10$).

3.2. Path model

3.2.1. Outline of analytic strategy

We tested a fully saturated mediation model with all possible paths included (i.e., $df = 0$), but excluding self-reported political ideology from the model for parsimony (given that conservative affiliation was not uniquely associated with the mediators or criteria after accounting for RWA, SDO, and Republican [vs. Democratic] affiliation, all $ps > .10^3$). Unique indirect effects were estimated with maximum-likelihood estimation with robust standard errors (i.e., MLR estimation). Mediation is indicated by (1) a decrease in the size of the relation between predictors and criteria after the mediators are taken into account and (2) a significant indirect effect through a mediator (Preacher & Hayes, 2004). Statistically unique indirect effects indicate the effect through the mediators while statistically controlling for the effects of all other mediators. Thus, unique indirect effects are analogous to unique direct effects in standard multiple regression, in that a unique indirect effect indicates an effect (here, through the mediator) over and above both direct effects of the predictor and other indirect effects. For instance, the unique indirect effect of RWA on Environmental Protection Support through Environmentalist threat represents the effect that can be accounted for solely by environmentalist threat, after covarying all direct and indirect effects of SDO, Republican (vs. Democratic) affiliation, the direct effect of RWA, and the indirect effect of RWA through the other 3 mediators.

RWA, SDO, and Republican (vs. Democratic) affiliation were tested simultaneously as predictor variables (see Fig. 1). Environmentalist threat, utilization of nature, dominance over nature, and love and care for nature were tested simultaneously as mediators (i.e. as statistically accounting for the link between the predictors

² We abbreviate the name of this measure from the original title, “Support for Interventionist Conservation Policies” (Milfont & Duckitt, 2010).

³ Although several predictor variables were strongly correlated, all variance inflation factors (VIF) were <2.6, and all tolerance values were >.388, suggesting no multicollinearity concerns based on standard cutoffs (VIF < 10, tolerance values > .10, see Cohen, Cohen, West, & Aiken, 2003).

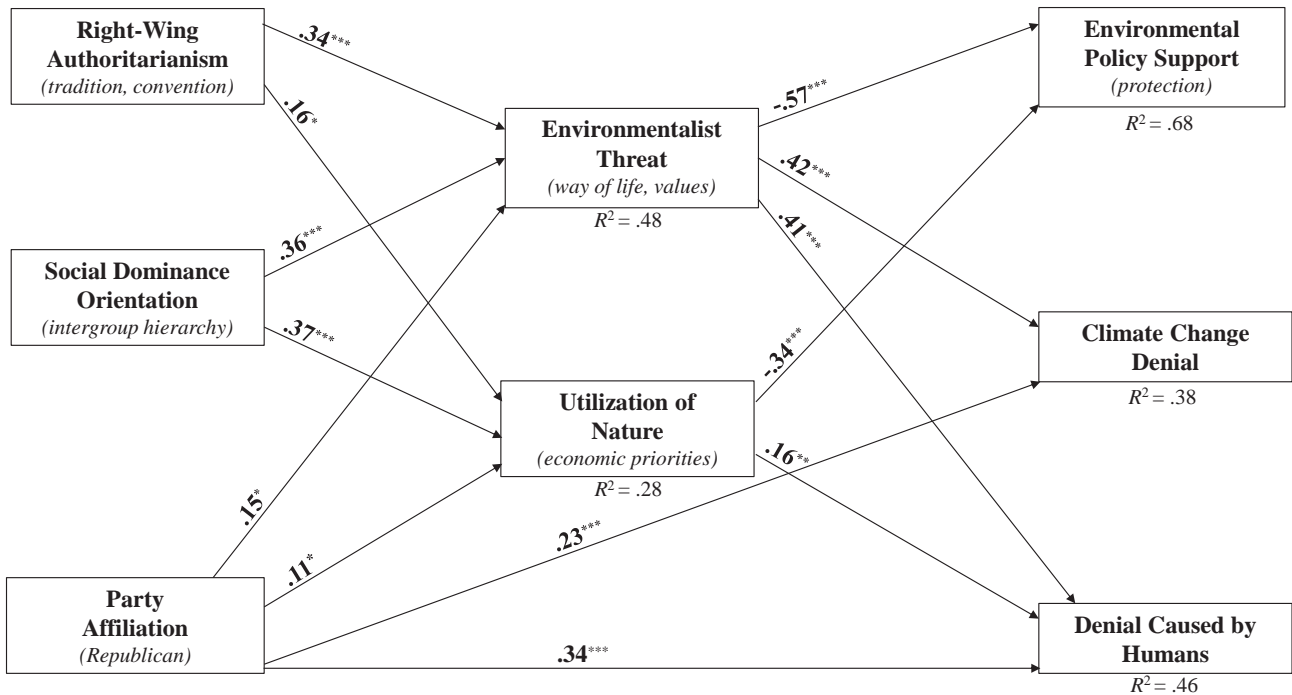


Fig. 1. Saturated mediation model predicting environmental policy support, climate change denial, and denial climate change is caused by humans. Note. Dominance Over Nature and Love and Care for Nature were maintained in the statistical model (see Table 2) but not illustrated. All non-significant paths are visually excluded. All residuals of mediators as well as all residuals of outcomes variables were allowed to correlate. * $p < .05$ ** $p < .01$ *** $p < .001$.

and criteria), with the residual variances of mediators set to intercorrelate. Dominance over nature and love and care for nature did not uniquely contribute to the model and thus are visually excluded from Fig. 1 (but are retained in the analyses). Environmental protection support, denial of climate change, and denial of human cause were tested simultaneously as criteria variables, with the residual variances of each allowed to intercorrelate.

3.2.2. Predicting environmental protection support

Overall, RWA, SDO, Republican (vs. Democratic) affiliation, and the four mediators accounted for 68% of the variance in environmental policy support. Although RWA, SDO, and Republican (vs. Democratic) affiliation predicted climate change denial at the zero-order level (see Table 1), after inclusion of all four mediators, RWA ($\beta = .05, p = .31$), SDO ($\beta = -.04, p = .34$), and Republican (vs. Democratic) affiliation ($\beta = -.07, p = .08$) did not uniquely predict environmental protection support. This demonstrates mediation of left–right differences for all predictor variables. In terms of the mediators, environmental protection support was uniquely predicted by lower environmentalist threat ($\beta = -.57, p < .001$), and lower utilization of nature ($\beta = -.34, p < .001$), as well as a statistical suppression effect of dominance over nature⁴ ($\beta = .11, p = .012$), with greater dominance over nature predicting greater environmental protection support with all predictors entered.

⁴ We caution the reader not to read too much into this path. Dominance over nature was negatively related ($r = -.47$) to environmental protection support at a bivariate level, but showed a positive relation ($\beta = .11$) with all predictors entered. This suppression effect is due to the overlap between dominance over nature and the other mediators and the stronger bivariate relations between environmental protection support and both environmentalist threat and utilization of nature and does not reflect a meaningful positive relation between dominance over nature and environmental protection support. Indeed, after accounting for demographics, this suppression effect was non-significant, further suggesting this effect is likely not meaningful.

Unique standardized indirect effects predicting environmental protection support were calculated, taking into account direct effects of RWA, SDO, and Republican (vs. Democratic) affiliation, as well as unique indirect effects through all four mediators (see Table 2 for effects decomposition). RWA ($IE = -.20, p < .001$), SDO ($IE = -.21, p < .001$), and Republican (vs. Democratic) affiliation

Table 2
Effects decomposition for predicting outcome measures (standardized effects).

	RWA	SDO	Repub (vs. Dem)
Environmental protection support			
Total effect	$-.16^* (.07)$	$-.36^{***} (.06)$	$-.19^{**} (.06)$
Direct effect	$.05 (.05)$	$-.04 (.05)$	$-.07 (.04)$
Indirect effect	$-.21^{***} (.05)$	$-.31^{***} (.04)$	$-.12^* (.05)$
Environmentalist threat	$-.20^{***} (.04)$	$-.21^{***} (.03)$	$-.09^* (.04)$
Utilization of nature	$-.05^* (.03)$	$-.12^{***} (.03)$	$-.04^† (.02)$
Dominance over nature	$.04^† (.02)$	$.03^* (.01)$	$.01 (.01)$
Love and care for nature	$.00 (.00)$	$-.01 (.01)$	$.00 (.00)$
Climate change (CC) denial			
Total effect	$.19^{**} (.07)$	$.12^* (.05)$	$.31^{***} (.06)$
Direct effect	$.02 (.07)$	$-.07 (.06)$	$.23^{***} (.05)$
Indirect effect	$.17^{***} (.04)$	$.19^{***} (.03)$	$.08^* (.03)$
Environmentalist threat	$.14^{***} (.03)$	$.15^{***} (.03)$	$.06^* (.03)$
Utilization of nature	$.01 (.01)$	$.03 (.02)$	$.01 (.01)$
Dominance over nature	$.01 (.02)$	$.01 (.02)$	$.00 (.01)$
Love and care for nature	$.00 (.00)$	$-.01 (.01)$	$.00 (.00)$
Denial CC caused by humans			
Total effect	$.08 (.06)$	$.17^{**} (.05)$	$.42^{***} (.05)$
Direct effect	$-.09^† (.06)$	$-.04 (.06)$	$.34^{***} (.05)$
Indirect effect	$.18^{***} (.04)$	$.21^{***} (.03)$	$.08^* (.03)$
Environmentalist threat	$.14^{***} (.03)$	$.15^{***} (.03)$	$.06^* (.03)$
Utilization of nature	$.03 (.02)$	$.06^* (.02)$	$.02 (.01)$
Dominance over nature	$.01 (.02)$	$.01 (.02)$	$.00 (.01)$
Love and care for nature	$.00 (.00)$	$.01 (.01)$	$.00 (.00)$

Note: RWA = right-wing authoritarianism; SDO = social dominance orientation; Repub (vs. Dem) = Republican (vs. Democratic) affiliation; standard errors are reported in parentheses and italicized; [†] $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

($IE = -.09, p = .014$) were uniquely associated with less environmental protection support through greater environmentalist threat. RWA ($IE = -.05, p = .039$) and SDO ($IE = -.12, p < .001$) were uniquely associated with less environmental protection support through greater utilization of nature ($ps < .05$). RWA ($IE = .04, p = .029$) and SDO ($IE = .03, p = .025$) were also uniquely associated with more environmental protection support through greater dominance over nature. Love and Care for Nature was not a unique predictor of environmental protection support, and no significant indirect effects through love and care for nature were found (all $ps > .10$).

3.2.3. Predicting climate change denial

Overall, RWA, SDO, Republican (vs. Democratic) affiliation, and the four mediators accounted for 38% of the variance in climate change denial. Although RWA and SDO predicted climate change denial at the zero-order level (see Table 1), after inclusion of all four mediators, RWA ($\beta = -.02, p = .74$) and SDO ($\beta = .07, p = .23$) did not uniquely predict climate change denial, indicating statistical mediation. In contrast, Republican (vs. Democratic) affiliation was also directly associated with greater climate change denial ($\beta = .23, p < .001$), that is, without operating through the mediators. In terms of the mediators, climate change denial was only uniquely predicted by environmentalist threat ($\beta = .42, p < .001$), with all other mediators not uniquely contributing to climate change denial (all $ps > .10$).

Unique indirect effects predicting climate change denial were calculated, taking into account direct effects of RWA, SDO, and Republican (vs. Democratic) affiliation, as well as unique indirect effects through all four mediators (see Table 2 for effects decomposition). RWA ($IE = .14, p < .001$), SDO ($IE = .15, p < .001$), and Republican (vs. Democratic) affiliation ($IE = .06, p = .029$) were uniquely associated with greater climate change denial through greater environmentalist threat. All unique indirect effects through utilization of nature, dominance over nature, and love and care for nature were non-significant (all $ps > .10$).

3.2.4. Predicting denial of human causes for climate change

Overall, RWA, SDO, Republican (vs. Democratic) affiliation, and the four mediators accounted for 46% of the variance in denial of human causes. Despite being associated with denial of human causes at the zero-order level (see Table 1), after accounting for all four mediators, RWA ($\beta = .09, p = .09$) and SDO ($\beta = .04, p = .52$) did not uniquely predict denial of human cause, reflecting mediation. Republican (vs. Democratic) affiliation was directly associated with greater denial of human cause ($\beta = .34, p < .001$), independently of the potential mediators. In terms of the mediators, denial of human cause was uniquely predicted by both environmentalist threat ($\beta = .41, p < .001$) and utilization of nature ($\beta = .16, p = .01$), whereas dominance over nature ($\beta = .03, p = .60$) and love and care for nature ($\beta = .03, p = .53$) were not unique predictors.

Unique indirect effects predicting denial of human cause were calculated, taking into account direct effects of RWA, SDO, and Republican (vs. Democratic) affiliation, as well as unique indirect effects through all four mediators (see Table 2 for effects decomposition). RWA ($IE = .14, p < .001$), SDO ($IE = .15, p < .001$), and Republican (vs. Democratic) affiliation ($IE = .06, p = .023$) were uniquely associated with greater denial of human cause through greater environmentalist threat (all $ps < .05$). SDO was additionally uniquely associated with greater denial of human cause through greater utilization of nature ($IE = .06, p < .05$). All unique indirect effects through dominance over nature and love and care for nature were non-significant (all $ps > .10$).

4. Discussion

“With socialism dead, the gigantic heist is now proposed as a sacred service of the newest religion: environmentalism.... The Left was adrift until it struck upon a brilliant gambit: metamorphosis from red to green.” (Charles Krauthammer, 2009).

Since the end of the Cold War, the American right has rallied around the notion that environmentalists now represent a significant and sinister threat to the Western way of life (Oreskes & Conway, 2010), with characterizations of environmentalists as “communists”, “terrorists”, and other threatening groups dramatically illustrating these perceptions. Anecdotally, popular culture is replete with examples of pushback against the environmental movement, but it is unclear the degree to which such pushback might itself explain ideological differences in recognizing climate change as real, preventable, and in need of intervention. Social, psychological, and political barriers impede effective action to prevent climate change (Gifford, 2011; Pidgeon & Fischhoff, 2011), and to the extent that an intergroup element underlies such barriers, intergroup solutions may be required to combat the greatest challenge we presently face as a species.

We examined *why* right-wing adherents are more resistant to believing that climate change is happening, caused by humans, and in need of political action. We proposed that environmentalist threat would itself explain much of the ideological resistance, above and beyond basic concerns about the economy (i.e., utilization) and beliefs regarding orientations toward nature (i.e. dominance over nature; love and care for nature). Our hypotheses were in keeping with intergroup theories such as symbolic racism (Sears, 1988) and integrated threat theory (Stephan & Stephan, 2000), and with recent findings on the pushback against vegetarianism and veganism by the right (Dhont & Hodson, 2014; MacInnis & Hodson, in press). As predicted, environmentalist threat significantly mediated (i.e., explained) relations between right-wing ideologies (RWA, SDO, Republican identity) and climate change beliefs. In fact, all effects of RWA and SDO were completely mediated, and 68–82% of the indirect effects of right-wing ideology were uniquely accounted for by environmentalist threat, with all nine indirect effects statistically significant. In contrast, although (economic) utilization of nature uniquely simultaneously accounted for many indirect effects, it only uniquely accounted for 6–39% of the indirect effects (see Table 2). To be clear, we are not suggesting that pushback against environmentalists solely accounts for left–right divide in climate-change beliefs. However, much of the effect is uniquely carried through this construct, above and beyond other mediators (utilization of nature, dominance over nature) that also carry part of the effect.

These novel findings are of particular relevance to the current discussion on climate change, indicating a previously untapped *intergroup* element to climate change issues that is decidedly political in nature. That is, the political polarization of climate change is not merely due to attitudes and beliefs about use of the environment and concerns for the economy, but in large part due to attitudes and beliefs about *environmentalists* (i.e., “watermelons”) as threatening to the status quo. This insight has considerable value in designing intervention strategies (see below) and for informing public policy.

Our findings are consistent with theorizing that greater denial of climate change on the right is largely being driven by ideological concerns rather than due to a lack of education or information (e.g., Campbell & Kay, 2014; Feygina et al., 2010; Gromet et al., 2013; McCright et al., 2014). As such, interventions primarily focused on education may be ineffective, particularly if they do not address

ideological resistance and threat perceptions. As [Campbell and Kay \(2014\)](#) argue, it may be more effective to pose climate change solutions that are non-threatening to conservative ideologies (e.g., growing the economy by creating green jobs; see also [Feygina et al., 2010](#)).

The intergroup dynamics involved in discussions of climate change, with environmentalists characterized as a threat, should not be taken lightly. Messages to take action on climate change are unlikely to be effective, for instance, if the messenger is perceived as wanting to negatively alter society, and may instigate pushback. Intergroup research has demonstrated experimental methodologies for alleviating intergroup antagonism. For instance, portraying humans as similar to animals is not effective at decreasing perceived division between animals in humans (because portraying humans as animalistic creates pushback); in contrast, emphasizing ways that animals are similar to humans enhances perception of animal-human similarity and decreases outgroup bias while avoiding pushback ([Costello & Hodson, 2010](#); Study 2; [Bastian, Costello, Loughnan, & Hodson, 2012](#)). Greater intergroup harmony can also be induced by increasing trust ([Hodson, Dube, & Choma, 2015](#)), by taking the perspective of the outgroup ([Hodson, Choma, & Costello, 2009](#)), by emphasizing shared interests associated with a broader group identity ([Dovidio et al., 1997](#); [Gaertner, Mann, Audrey, & Dovidio, 1989](#)), and by competing for resources or prestige against a common/shared enemy ([Adachi, Hodson, & Hoffarth, in press](#); [Adachi, Hodson, Willoughby, & Zanette, 2015](#)). In light of such findings, encouraging climate change mitigation among right-wing adherents may be most effective when it (1) is framed in a manner that is not ideologically threatening and (2) emphasizes intergroup cooperation and combatting a common “enemy” (i.e., climate change).

We argue that individuals and organizations who are not seen as primarily motivated by “environmentalist” concerns, yet advocate for action on climate change, such as recognized right-wing and religious leaders, may be more effective communicators (as they would not be seen as ideologically threatening to right-wing adherents). For example, some Republican politicians now acknowledge that we must act on climate change ([Kliegman, 2014](#)), and the Pentagon (a traditionally conservative organization) has published a report outlining how climate change threatens national security ([Department of Defense, 2014](#)), a decidedly conservative concern that presents climate change as a common “enemy” to all Americans. Future research would benefit from analyzing the effectiveness of arguments to act against climate change that originate from conservative sources, particularly arguments speaking to the relevance of climate change to conservatives. In addition, future research can examine how exposure to Republican or conservative environmentalists may impact environmentalist threat and climate change beliefs. Consistent with findings that intergroup contact decreases perceived threat (see [Pettigrew & Tropp, 2008](#)), increased exposure to such right-leaning figures who express environmental concerns, either through (social) media or in person, might encourage attitude change consistent with engaging environmental protection (vs. exploitation). In contrast, a Republican leading figure with pro-environmental concerns might come across as an outgroup member, or at least not a full ingroup member, which may hinder any attitude change. Another challenge is to engage racial minorities, given findings that racial minorities may not relate to or connect with environmentalist activism, seeing it as a predominantly “White” issue that does not address racial inequalities that directly impact their lives ([Whittaker, Segura, & Bowler, 2005](#)). Future research would therefore benefit from further examining racial intergroup aspects to climate change beliefs (e.g. increasing minority voices in discussions of environmental issues).

In addition, [Gifford \(2013\)](#) distinguishes between “mules”, who intentionally and actively protect the environment (many of whom likely identify as environmentalists) and “honeybees”, who positively impact the environment without “environmentalist” goals (e.g. purchasing a fuel-efficient vehicle to save money, without regard to the environmental impact). Our results suggest that encouraging conservatives to be “honeybees” may be more effective than encouraging conservatives to be environmentalist “mules”, given the likely pushback against environmentalist persuasion techniques. Consistent with this framing, conservatives are as likely as liberals to buy energy efficient lightbulbs advertised as money-saving technologies, but less likely than liberals when “environmentally friendly” stickers are displayed on the bulbs ([Gromet et al., 2013](#)).

Whereas environmentalist threat and utilization of nature both uniquely accounted for the effects of right-wing ideology in our analyses, dominance over nature and love and care for nature did not. Given that dominance over nature was strongly related to the outcomes at a bivariate level ($r_s = -.47, .38$, and $.42$, respectively), the lack of a unique relation is likely due to conceptual overlap between dominance over and utilization of nature, with both measures part of the broader construct of environmental “utilization” ([Milfont & Duckitt, 2006, 2010](#)). Yet love and care for nature was not related to RWA, political affiliation, or Republican affiliation at the bivariate level (consistent with [Dietz et al., 2005](#); [Perkins, 2010](#)), and appears more weakly related to SDO than the other mediators. Relative to those on the left, those on the right therefore do not necessarily feel less connected to nature.

Of note, all effects of right-wing ideology on environmental criteria in our path model were fully accounted for by the mediators, with the exception of direct effects of Republican affiliation predicting climate change denial and denial of human cause (consistent with [MacInnis, MacLean, & Hodson, 2014](#), on right-wing ideology predicting attitudes toward abortion). This suggests that untested mediators, in addition to environmentalist threat, economic beliefs, dominance beliefs, and care for nature may account for this latter effect. [Cohen \(2003\)](#) found that portraying a political issue as supported by Republicans increased Republicans' support, but portraying the same political issue as supported by Democrats increased Democrats' support. Likewise, both Republicans and Democrats may draw on their party identity and conform to party leaders' stances on climate change, a potential area for future research. For instance, reframing political strategies in ways that do not demarcate climate change as a Democratic versus Republican issue, but rather as a bipartisan concern, may be particularly effective. Indeed, climate change beliefs are strongly influenced by group identities ([Kahan et al., 2012](#)).

Like all studies, our investigation had limitations. Our data are cross-sectional, and thus it cannot be concluded based on our results that perceptions of environmentalist threat cause climate change attitudes and/or beliefs. Future research would benefit from manipulating environmentalist threat perceptions (following [Spencer, Zanna, & Fong, 2005](#)). Moreover, our Mturk sample, although more nationally representative than university students, does not represent a random sample of the general population. As in most surveys, some participants may have guessed our hypotheses, which may bias our results, but this would be no more so than the average survey. Finally, we only surveyed US participants given our interest in explaining the large left–right differences in America. Although we would predict relatively similar findings in other Western countries with left–right divides, this remains an untested question for future researchers.

5. Conclusions

Our results identify a previously unexamined *intergroup* element to the political polarization of climate change, with the polarization effects on environmental attitudes largely accounted for by those on the political right viewing environmentalists (the predominant proponents of climate change action) as a threat, consistent with political rhetoric portraying environmentalists as threatening outgroups (e.g. Communists, terrorists, and Nazis). Whereas much of the political rhetoric for not acting on climate change focuses on economic concerns, the political polarization of climate change appears strongly driven by perceptions that the primary advocates of climate change (environmentalists) are themselves a threat to society, leading to intergroup pushback. Yet effective mitigation of climate change requires participation from across the political spectrum. We urge scientists and policymakers to consider communication strategies for reducing carbon emissions that are not reliant on overtly environmentalist concerns and solutions, and emphasize the benefits of cooperating across the political spectrum.

Appendix

Environmentalist threat measure

- (1) The rise of environmentalism poses a threat to our country's cultural customs.
- (2) Important traditions which are typical to our country are starting to die out due to the rise of environmentalism.
- (3) Using natural resources is part of our cultural habits and identity and some people should be more respectful of that.
- (4) Environmentalists should have more respect for our traditional customs, which using natural resources is simply part of.
- (5) Important family traditions and celebrations are increasingly being ruined and disappearing because of the presence of environmentalists.
- (6) Environmentalism has a negative influence on the American economy.
- (7) The environmentalist movement is too involved in local and national politics.
- (8) Nowadays, when it comes to infrastructure and economic expansion, people listen too much to what a minority of environmentalists want.
- (9) The American economy cannot remain dominant if we listen to environmentalists.
- (10) Hard-working Americans are negatively impacted by environmentalists.
- (11) If we want America to be economically competitive, we shouldn't pay too much attention to environmentalists.
- (12) If the American government makes changes to protect the environment, other countries will continue to pollute and get an economic advantage.

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