The Gender Gap in Environmental Attitudes: A System Justification Perspective

Chapter · January 2013

3 authors:

Rachel E Goldsmith
Icahn School of Medicine at Mount Sinai
40 PUBLICATIONS   **1,855** CITATIONS

SEE PROFILE

Irina Feygina
Climate Central
22 PUBLICATIONS   **767** CITATIONS

SEE PROFILE

John T Jost
New York University
272 PUBLICATIONS   **34,910** CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Postdoctoral Fellowship: Heterosexism and System Justification View project

Procedural Justice and System Justification View project

The Gender Gap in Environmental Attitudes:

A System Justification Perspective

Rachel E. Goldsmith

Rush University Medical Center

Irina Feygina

New York University

John T. Jost

New York University

The Gender Gap in Environmental Attitudes:

A System Justification Perspective

Abstract

System justification refers to a psychological tendency to maintain certainty, security, and solidarity through motivated perceptions of the status quo and the extant socioeconomic system as beneficial, fair, stable, and legitimate, especially in response to dependency and threat. System justification impedes efforts to address societal challenges, and in particular gives rise to denial, resistance, and inaction in the face of climate change and environmental problems. Women chronically engage in less system justification than men, and this difference partially explains women's greater willingness to acknowledge ecological problems and risks and to engage in actions that are beneficial for the environment. We demonstrate that reframing environmental messages as consistent with upholding the established way of life and the well-being of our society gives rise to increased support for environmental efforts on the part of those who are especially motivated to justify the system and can therefore help to narrow the ideological gap in environmental attitudes and behaviors.

The Gender Gap in Environmental Attitudes:

A System Justification Perspective

A widespread and consistent finding reveals that women, as compared to men, demonstrate higher levels of awareness and response to environmental problems (e.g., McCright, 2010; World Bank, 2010). Gender differences have been reported in pro-environmental attitudes, concern for the environment, knowledge levels regarding climate change, and willingness to take action to improve environmental problems (Bord & O'Connor; 1997; Semenza et al., 2011; Zelezny, Chua, & Aldrich, 2000). How can we understand these and related differences?

Gender and Psychological Responses to Climate Change

It is impossible to understand current responses to the environmental crisis, as well as gender differences in these responses, without taking into consideration the impact of social and psychological processes. Research reveals that cognitive, affective, interpersonal, and societal factors influence environmental knowledge, concern, and action (Swim et al., 2011). Barriers to acknowledging and addressing environmental problems include challenges in procuring accurate information; assessing the likelihood, severity, and causes of environmental threats; feelings of separation or alienation from natural ecosystems; prioritizing individual gain over collective well-being; discomfort with uncertainty; attachment to habits; perceptions of problems arising from climate change as temporally and geographically distant; and the difficulty of collaborating with others to tackle ecological problems effectively (e.g., Antal & Hukkinen, 2010; Gardner & Stern, 2002; Gifford, 2011; Swim et al., 2009; Takacs-Santa, 2007). Explanations aimed at elucidating gender differences in support for the environment have posited women's stronger "ethic of care", more prevalent altruistic tendencies, greater capacity for perspective-taking, and stronger empathic tendencies (Arnocky & Stroink, 2011; Dietz, Kalof, & Stern, 2002; Zelezny et

al., 2000).

In addition to these factors, our research addresses the role of motivational processes in the formation and change of attitudes and responses concerning environmental problems. Specifically, we examine how the motivation to justify the socioeconomic system and status quo, especially but not exclusively in response to threat (e.g., Jost, Banaji, & Nosek, 2004; Jost & Hunyady, 2005), influences responses to ecological challenges (Feygina, Jost, & Goldsmith, 2010; Feygina, Goldsmith, & Jost, 2010). Moreover, we focus on how the widespread impetus to rationalize "the way things are" affects the relationship between gender and environmentalism.

Gender Differences in Environmental Knowledge, Concern, and Action

We begin by addressing the scope of gender differences in knowledge regarding global climate change, levels of concern for the environment, and extent of engagement in pro-environmental actions, and then consider prior explanations that have been offered to account for these gender differences. Relationships between gender and environmental beliefs and actions have been investigated in many countries, settings, and age groups. Overall, women display greater pro-environmental attitudes and more concern and willingness to take action to help the environment, compared to men (Carrier, 2007; Davidson & Freudenberg, 1996; Dietz, Kalof, & Stern, 2002; Stern, Dietz, & Kalof, 1993; Sundblad, Biel, & Gärling, 2007; Wang, 1999; Zelezny et al., 2000). Differences are also observed with respect to knowledge regarding the science of climate change as well as self-perceptions about knowledge of environmental issues. For instance, U.S. surveys conducted by the Pew Research Center reveal that women are more likely than men to believe that there is "solid evidence" for global warming (Egan & Mullin, 2012). Similar findings emerge from Gallup Polls surveys collected over the last decade, which assess opinions about whether pollution from human activities constitutes the primary cause of global

warming, whether most scientists believe global warming is occurring, and whether the effects of global warming have already begun to happen. Statistically adjusting for other factors, including political ideology, party affiliation, educational attainment, age, race, and annual income, women were more knowledgeable about climate change than were men, and this gender difference remained consistent over time. However, adjusting for climate change knowledge and related variables, women were more likely than men to underestimate their scientific knowledge of climate change (McCright, 2010). Finally, in an international World Bank (2010) study of public attitudes regarding climate change, women in the U.S., France, Russia, Japan, and Bangladesh were more likely than men to believe that climate change has already begun to harm people. Men were more likely than women to hold this belief in only one country, Iran.

Women also express higher levels of concern and perceptions of risk regarding environmental issues, compared to men (Arnocky & Stroink, 2011; Bord & O'Connor, 1997; Davidson & Freudenberg, 1996; Dunlap & McCright, 2008; Riechard & Peterson, 1998; Tranter, 2011; Zelezny et al., 2000). These gender differences remained statistically significant even after adjusting for environmental knowledge, religiosity, and socialization (Zelezny et al., 2000). Women also report more concern about the effects of climate change than do men (Brody et al., 2008; Hamilton, 2008; Leiserowitz, 2006; Malka, Krosnick, & Langer, 2009; McCright, 2010; O'Connor et al., 1999), a difference that persists even after adjusting for employment status, parenthood, and being a full-time homemaker (McCright, 2010).

Studies of environmental *action* also reveal that women are more likely than men to actively participate in pro-environmental behaviors and to express willingness to contribute financially to protecting the environment (Tranter, 2011; Wehrmeyer & McNeil, 2000). For example, women are more likely than men to report reducing energy consumption in response to

information about climate change (Semenza et al., 2011). Women from 20 different nations were found to participate in significantly more environmentally-oriented behaviors than men in the private sphere (e.g., recycling, transportation choices) but not in the public sphere (e.g., volunteering, attending meetings or protests) (see Hunter et al., 2004). In research involving undergraduate samples from the U.S., Europe, and Latin America, women reported greater pro-environmental action in 11 of 14 countries (Zelezny et al., 2000), with gender differences more pronounced for behavioral than attitudinal measures. Finally, undergraduate women display greater willingness than men to engage in ecological cooperation within the context of a commons dilemma (Arnocky & Stroink, 2011).

Explaining Gender Differences in Environmentalism

Several explanations have been proposed for gender differences in environmentalism. Zelezny et al. (2000) argued that women, compared to men, are more likely to take the perspective of others, and to hold a stronger "ethic of care." Across cultures, women tend to be socialized to be more expressive, nurturing, cooperative, and caregiving than men, whereas men are socialized to be more competitive and independent than women. Being ecocentric – concerned with environmental needs – suggests an "other" orientation, which, according to gender socialization theory, is more characteristic of female than male socialization. In line with this argument, women from 14 different countries not only reported greater environmental concern, but also expressed a stronger sense of social responsibility and affinity for taking others' perspectives, as compared to men in those same countries.

Gender differences in altruism, empathy, and cooperation may also help to illuminate the nature of the relationship between gender and environmentalism. Female undergraduates are more likely than males to be concerned about the negative impact of environmental problems on

personal well-being, social welfare, and the sustainability of the planet, which contributes to a greater willingnes to take political action and pay higher taxes to support the environment (Stern et al., 1993). Moreover, the greater value women ascribe to altruism seems to underlie their greater endorsement of pro-environmental attitudes (Dietz, Kalof, & Stern, 2002). Finally, women's capacity for empathy contributes to increased willingness to act cooperatively in an environmental commons dilemma (Arnocky & Stroink, 2011).

Impact of System Justification Tendencies on Environmentalism

While the findings discussed above highlight important differences between women and men that contribute to gender differences in environmental attitudes and behaviors, in our research we explore an additional contributor: the motivation to justify the existing social, economic, and political system and status quo. *System justification* refers to the psychological tendency to maintain the perception of social stability, certainty, security, and belongingness through motivated perceptions of the status quo and the extant socioeconomic system as fair, legitimate, and desirable (Jost, Banaji, & Nosek, 2004; Jost & Hunyady, 2005; Jost, Ledgerwood, & Hardin, 2008). In the short term, system justification assuages anxiety, fear, and uncertainty that arise when the status quo is threatened (e.g., Jost & Hunyady, 2002). However, in the long term, system justification can inhibit the pursuit of positive social change and collective action aimed at correcting injustices and system-level problems (Wakslak, Jost, Tyler, & Chen, 2007). It may produce especially negative consequences for members of disadvantaged groups, including the perpetuation of inequality, stigma, and other structural barriers to well-being (e.g., Jost & Thompson, 2000; O'Brien & Major, 2005; Rankin, Jost, & Wakslak, 2009).

Applying system justification theory to the scientific understanding of responses to climate change suggests multiple layers of interpretation. The model highlights defensive

psychological processes that arise when individuals are confronted with the threat of climate change, and it speaks to empirical connections involving gender, political ideology, and attitudes concerning the environment. Current environmental problems are bound to prevalent socioeconomic institutions and practices (Axelrod & Suedfeld, 1995; Shrivastava, 1995; White, 1967). These include industrial practices and technologies that drain the Earth's resources and create pollution that endangers ecosystems and human health, as well as political indifference to environmental harm, and cultural assumptions about dominating and exploiting nature for the sake of progress and growth. Thus, facing up to environmental problems and their anthropogenic causes necessitates finding fault with and questioning many aspects of the societal status quo, which conflicts with psychological needs to perceive the social system as legitimate and stable. We propose that, as a result, information about climate change and proposals to take action are likely to instigate defensive responses from individuals and groups who are motivated to justify the system.

The conflict between negative information regarding climate change and the motivation to preserve current social, economic, and political arrangements creates psychological "dissonance" which people are motivated to reduce (Festinger, 1957) by minimizing or denying one of the conflicting cognitions, while generating increased support for the chosen belief. While threats from outside (e.g., international terrorism) often elicit aggressive responses, the environmental challenge is internal to the system. As a result, we propose that defensive mechanisms will often result in minimization, distortion, and denial of the problem and of human responsibility for it.

Several prior studies support these claims, demonstrating that psychological defense mechanisms contribute to apathetic responses to the problem of climate change (e.g., Hollander,

2009; Moran, 2011; Norgaard, 2011). Denial (the rejection of reality) is used to resolve dissonance between concerns about climate change and the desire to maintain continuity in one's lifestyle (Stoll-Kleemann et al., 2001). In addition, climate change frequently gives rise to sadness, disgust, guilt, anxiety, helplessness, and depression. Denial is used as a psychological defense to buffer the experience of these negative feelings (Doherty & Clayton, 2011). Similar defense mechanisms guard against distress from environmental degradation, including "rational distancing" (i.e., the cutting off of emotional responses) and diffusion of responsibility (rejecting personal responsibility and blaming others for environmental problems; see Kollmuss & Agyeman, 2002). Such defense mechanisms are likely to interfere with taking effective action against the deleterious consequences of climate change (Hollander, 2009). Finally, environmental denial appears to increase with investment in current socioeconomic practices. In one of many examples, individuals who profess stronger levels of support for a capitalist economy are less likely to believe that climate change is occurring, that it is caused by human activity, and that its consequences are negative (Heath & Gifford, 2006).

Empirical Evidence

To provide even more direct evidence for the proposed relationship between system justification and denial of environmental realities we conducted a series of survey and experimental studies (see Feygina, Jost, & Goldsmith, 2010). First, we assessed the extent to which our participants were motivated to justify the societal status quo by asking whether they agreed or disagreed with statements such as "Most policies serve the greater good," "Society is set up so that people usually get what they deserve," "In general, the American political system operates as it should," and "American society needs to be radically restructured" (Kay & Jost, 2003). Participants reported their environmental attitudes using the *New Environmental*

Paradigm scale (NEP; Dunlap, van Liere, Mertig, & Jones, 2000), which assesses: denial of the possibility of an ecological crisis (e.g., "If things continue on their present course, we will soon experience a major environmental catastrophe"); denial of limits to growth (e.g., "The earth has plenty of natural resources if we just learn how to develop them"); denial of the need to abide by the constraints of nature (e.g., "Humans will eventually learn enough about how nature works to be able to control it"); and denial of the danger of disrupting balance in nature (e.g., "The balance of nature is strong enough to cope with the impacts of modern industrial nations"). We found that, as hypothesized, the more participants were invested in the system and motivated to uphold it through justification, the more they engaged in all four types of denial of environmental realities.

System Justification Contributes to Gender Differences in Environmentalism

These findings also have direct implications for explaining gender differences in environmentalism. The motivation to justify the system is related to an individual's status within society. Occupying a privileged position within a hierarchical social order yields many benefits. Women, minorities, and the poor are often in a situation of disadvantage, while groups who control material resources exploit those lacking resources (Kendall, Lobao, & Sharp, 2006). The advantaged are especially motivated to maintain and justify current systems and are typically more likely to engage in system justification (Jackman, 1994; Jost & Thompson, 2000; Rankin, Jost, & Wakslak, 2009; Sidanius & Pratto, 1999). For instance, males typically score significantly higher than females on measures of system justification (Jost & Kay, 2005). On the basis of this finding, we hypothesized that higher system justification among men would account for their greater denial of environmental realities, in comparison with the less privileged social status of women.

This idea resonates with prior theorizing, such as feminist frameworks that have offered similar explanations for the association between gender and environmental attitudes. Because of longstanding experiences of oppression, women more readily identify with the exploitation of natural resources by humans and have a stake in ending this exploitation (Shiva, 1989). Both the feminist and environmental movements seek to establish egalitarian, non-hierarchical systems. In addition, feminist consciousness – which involves an awareness of social inequalities based on gender and a commitment to overcoming such disparities (Conover & Sapiro, 1993) – is related to stronger support for the environment, among both women and men (Gupte, 2002). Conversely, endorsement of right-wing authoritarianism – a preference for hierarchy and dominant leadership, as well as support for discrimination, hostility, and prejudice against out-groups (e.g., Altemeyer, 1998; Whitley, 1999) – is associated with less environmental support among men and women alike (Wang, 1999). A system justification framework helps to integrate these findings, insofar as feminist consciousness and support for the environment both reflect a willingness to acknowledge and respond to the drawbacks of the status quo and the need to care for those who are vulnerable, whereas right-wing authoritarianism bolsters entrenched hierarchical systems that are consistent with the exploitation of the Earth and its resources.

Results from our studies (Feygina et al., 2010) demonstrate that, as hypothesized, women engage in less system justification than men, and men are indeed more likely than women to deny environmental problems. Using mediational analyses (Baron & Kenny, 1986), we determined that the gender difference in system justification statistically explains the gender gap in environmental attitudes, at least in part. In other words, men's greater denial of environmental realities is partially accounted for by their more enthusiastic endorsement of system justifying beliefs.

Connections among Gender, Social Status, Ideology, and Environmentalism

Research also demonstrates that endorsement of system justification differs across the ideological spectrum. Political conservatives, compared to liberals, report stronger tendencies to justify the system (Jost, Glaser, Kruglanski, & Sulloway, 2003; Jost, Nosek, & Gosling, 2008), and therefore engage in greater denial of environmental problems (Feygina, Jost, & Goldsmith, 2010). A multitude of investigations have documented stronger tendencies to deny and minimize problems associated with anthropogenic climate change among political conservatives vs. liberals and moderates in the U.S. (Begley, 2007; Saad, 2007), Australia (Tranter, 2011) and in two dozen other countries (Tjernström & Tietenberg, 2008).

It is important to consider how these ideological factors interact with and magnify the effect of social status on gender differences in environmentalism (e.g., McCright, 2010). McCright and Dunlap (2011) analyzed public opinion data from ten Gallup surveys, conducted between 2001 and 2010, which assessed five types of responses to climate change related to denial. These included beliefs about if and when the effects of climate change would occur; whether climate change is primarily caused by human activities; whether scientists have reached a consensus on climate change; the extent to which global warming is exaggerated in the news; and levels of worry about climate change. Results demonstrated that conservative White males were far more likely than other groups to perceive minimal risks in all five areas. For instance, 29.6% of conservative White males expressed the belief that the effects of global climate change will never occur, whereas only 7.4% of other respondents endorsed this view. A strong majority of conservative White males (65.1%) believed that the media has exaggerated the seriousness of global warming, whereas only 29.9% of other respondents held this view. Similar outcomes were observed for beliefs regarding scientific consensus, the role of human activities, and levels of

worry. Interestingly, White males were more likely than other groups to report that they understood climate change very well, and self-reported understanding was positively correlated with the denial of climate change. McCright and Dunlap (2011) argue that these results reflect tendencies to engage in system justification (Feygina et al., 2010), insofar as conservative White males are more likely to hold positions of political and economic power, and are therefore more motivated to defend the societal status quo. Exaggerated confidence in perceived understanding, and its association with denial of climate change (McCright & Dunlap, 2011), may reflect fairly successful efforts to reduce cognitive dissonance by minimizing and rejecting undesirable information. This tendency to maintain consistent beliefs through motivated ignorance of aspects of reality presents a formidable barrier to addressing climate change (e.g., Antal & Hukkinen, 2010; Kollmuss & Agyeman, 2002; Shepherd & Kay, 2012).

Similar correlations between gender and support for the environment are observed at the level of mass politics. Increased representation of women in national parliaments was associated with environmental treaty ratification in a comparison involving 130 countries that comprise of 92% of the world's population (Norgaard & York, 2005). This suggests that the egalitarianism of societies and the inclusion of women in government are important factors in determining political support for pro-environmental policies.

Harnessing System Justification Motivation

Given the formidable barrier that system justification poses for acknowledging and responding to environmental problems, we sought to determine whether defensive psychological responses could be redirected toward building support for the environment and for positive structural change. In an experimental setting, we reframed environmentalism to emphasize the ways in which it is consistent with the well-being and perpetuation of the system: ("Being pro-

environmental allows us to protect and preserve the American way of life. It is patriotic to conserve the country's natural resources"). We found that exposure to this message attenuated, and even reversed, the negative impact of system justification on environmental attitudes and behaviors. Among participants who exhibited strong tendencies to justify the system, those who were exposed to the system-congruent message reported greater intentions to help the environment through private and public actions, and were more likely to sign petitions intended to benefit the environment. In other words, we harnessed the motivation to uphold and protect the status quo and directed it toward helping, rather than harming, the environment. These results suggest that reframing environmental messages to address the needs of those who are strongly motivated to justify the system may be a powerful tool for overcoming resistance. We recommend that communications draw attention to the fundamental ways in which pro-environmental behavior is consistent with maintaining the well-being of society (e.g., the "American way of life"), in order to increase participation among individuals with system-justifying proclivities.

Our recommendation aligns well with others that have been proposed in light of evidence that purely science-focused approaches to communicating the importance of climate change to public audiences have been ineffective (Antal & Hukkinen, 2010). Rather, environmental communication should target social, cognitive, and motivational dynamics through messages that link individual concerns about safety to broader issues of cultural survival, and pair depictions of environmental problems with convincing methods of addressing them (Antal & Hukkinen, 2010). Strategies such as these are especially important in the U.S. and in Western Europe, where individuals perceive environmental issues to be related to ambitious, abstract goals such as social justice and world peace. They may be less necessary in countries like Japan, where

environmental priorities appear connected to longstanding, traditional, proximal, and personal constructs, such as family security and honoring one's parents (Aoyagi-Usui, Vinken, & Kuribayashi, 2003). Messages regarding climate change can be made more effective by linking policy goals to local environmental contexts and personal concerns. Given that, as we have seen, women are typically more likely to concern themselves with the personal and collective impact of environmental problems (Stern, Dietz, & Kalof, 1993), messages that stimulate men's interest and motivation in addressing environmental challenges would be especially valuable.

Conclusions

The research described in this chapter addresses the recent call by social scientists to investigate psychological barriers to the acknowledgment of climate change and commitment to pro-environmental action (e.g., Antal & Hukkinen, 2010; Clayton & Brook, 2005; Feinberg & Willer, 2011; Swim et al, 2011). It also provides insight into the role of motivated system justification processes with respect to the widely observed gender gap in environmental attitudes. We find that the more individuals are invested in the status quo, and the more motivated they are to justify and uphold extant systems, the less willing they are to admit and confront environmental problems. To the extent that men traditionally occupy higher status in society than women, they benefit more from established social, economic, and political institutions and arrangements, exhibit stronger motives to justify the system, and are less willing to admit and tackle environmental challenges. We have shown that psychological barriers to confronting ecological crises can be countered by reframing environmental messages as consistent with defending and preserving the status quo. Our collective efficacy in addressing the environmental challenge may hinge upon the willingness to acknowledge our detrimental attachment to the status quo, and our ability to foster a psychologically sustainable approach to inspiring change.

References

Altemeyer, B. (1998). The other "authoritarian personality." In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (vol. 30, pp. 47-92). New York: Academic Press.

Antal, M., & Hukkinen, J. I., (2010). The art of the cognitive war to save the planet. *Ecological Economics, 69*, 937-943.

Aoyagi-Usui, M., Vinken, H., & Kuribayashi, A. (2003). Pro-environmental attitudes and behaviors: An international comparison. *Human Ecology Review, 10*, 23–31.

Arnocky, S. & Stroink, M. L. (2011). Gender differences in environmental concern and cooperation: The mediating role of emotional empathy. *Current Research in Social Psychology, 16,* 1-14.

Axelrod, L. J., & Suedfeld, P. (1995). Technology, capitalism, and Christianity: Are they really the three horsemen of the eco-collapse? *Journal of Environmental Psychology, 15,* 183-195.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Begley, S. (2007). The truth about denial. *Newsweek.* Retrieved on August 14, 2007 from http://www.msnbc.msn.com/id/20122975/site/newsweek/-COVER

Bord, R. J., & O'Connor, R. E. (1997). The gender gap in environmental attitudes. *Social Science Quarterly, 78,* 830–840.

Brody, S. D., Zahran, S., Vedlitz, A., & Grover, H. (2008). Examining the relationship between physical vulnerability and public perceptions of global climate change in the United States. *Environment and Behavior, 41*, 72–95.

Carrier, S. J. (2007). Gender differences in attitudes toward environmental science. *School Science and Mathematics, 107*, 271-278.

Clayton, S. & Brook, A. (2005). Can psychology help save the world? A model for conservation psychology. *Analyses of Social Issues and Public Policy, 5,* 1-15.

Conover, P. J., & Sapiro, V. (1993). Gender, feminist consciousness, and war. *American Journal of Political Science, 37,* 1079-1099.

Davidson, D. J., & Freudenburg, W. R. (1996). Gender and environmental risk concerns. *Environment and Behavior, 28*, 302–339.

Dietz, T,, Kalof, L., & Stern, P. C. (2002). Gender, values, and environmentalism. *Social Science Quarterly, 83*, 351-364.

Doherty, T. J. & Clayton, S. (2011). The psychological impacts of global climate change. *American Psychologist, 66*, 265-276.

Dunlap, R. E., & McCright, A. M. (2008). A widening gap: Republican and Democratic views on climate change. *Environment, 50*, 26–35.

Dunlap, R. E., van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New trends in measuring environmental attitudes: Measuring endorsement of the New Ecological Paradigm: A revised NEP Scale. *Journal of Social Issues, 56,* 425-442.

Egan, P. J., & Mullin, M. (2012). Turning personal experience into political attitudes: The effect of local weather on Americans' perceptions about global warming.

Feinberg, M., & Willer, R. (2011). Apocalypse soon? Dire messages reduce belief in global warming by contradicting just-world beliefs. *Psychological Science, 22*, 34-38.

Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Evanston, IL: Row, Peterson.

Feygina, I., Goldsmith, R., & Jost, J.T. (2010). System justification and environmental goal-setting: Self-regulation failure as an obstacle to overcoming addiction to the status quo. In R. Hassin, K. Ochsner, & Y. Trope (Eds.), *Social cognitive and neuroscientific approaches to self-control.* New York: Oxford University Press.

Feygina, I., Jost, J. T., & Goldsmith, R. (2010). System justification, the denial of global warming, and the possibility of "system-sanctioned change." *Personality and Social Psychology Bulletin. 36,* 326-338.

Gardner, G. T., & Stern, P. C. (1996). *Environmental problems and human behavior.* Boston, MA: Pearson Custom Publishing.

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist, 66*, 290-302.

Gupte, M. (2002*).* Gender, feminist consciousness, and the environment: Exploring the "natural" connection." *Women and Politics, 24*, 47-62.

Hamilton, L. C. (2008). Who cares about polar regions? *Arctic, Antarctic, and Alpine Research, 40*, 671–678.

Heath, Y., & Gifford, R. (2006). Free-market ideology and environmental degradation: The case of belief in global climate change. *Environment and Behavior, 38,* 48-71.

Hollander, N. C. (2009). When not knowing allies with destructiveness: Global warming and psychoanalytic ethical non-neutrality. *International Journal of Applied Psychoanalytic Studies, 6*, 1-11.

Hunter, L.M., Hatch, A., & Johnson, A. (2004). Cross-national gender variation in environmental behaviors. *Social Science Quarterly, 85,* 677-694.

Jackman, M. (1994). *The Velvet Glove: Paternalism and Conflict in Gender, Class, and Race Relations*. Berkeley: University of California Press.

Jost, J. T., Banaji, M. R., Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology, 25,* 881-919.

Jost, J. T., Glaser, J., Kruglanski, A.W., & Sulloway, F. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin, 129,* 339-375.

Jost, J. T., & Hunyady, O. (2002). The psychology of system justification and the palliative function of ideology. *European Review of Social Psychology, 13,* 111-153.

Jost, J. T., & Hunyady, O. (2005). Antecedents and consequences of system-justifying ideologies. *Current Directions in Psychological Science, 14*, 260-265.

Jost, J. T., & Kay, A. C. (2005). Exposure to benevolent sexism and complementary gender stereotypes: Consequences for specific and diffuse forms of system justification. *Journal of Personality and Social Psychology, 88,* 498-509.

Jost, J. T., Ledgerwood, A., & Hardin, C. D. (2008). Shared reality, system justification, and the relational basis of ideological beliefs. *Social and Personality Psychology Compass, 2,* 171-186.

Jost, J.T., Nosek, B.A. & Gosling, S.D. (2008). Ideology: Its resurgence in social, personality, and political psychology. *Perspectives on Psychological Science,* 3,126-136.

Jost, J. T., & Thompson, E. P. (2000). Group-based dominance and opposition to equality as independent predictors of self-esteem, ethnocentrism, and social policy attitudes among African Americans and European Americans. *Journal of Experimental Social Psychology, 36,* 209–232

Kay, A. C., & Jost, J. T. (2003). Complementary justice: Effects of "poor but happy" and "poor but honest" stereotype exemplars on system justification and implicit activation of the justice motive. *Journal of Personality and Social Psychology, 85,* 823–837.

Kendall, H. A., Lobao, L. M., & Sharp, J. S. (2006). Public concern with animal well-being: Place, social structural location, and individual experience. *Rural Sociology. 71,* 399–428.

Kollmuss, A. & Agyeman. J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8,* 239-260.

Leiserowitz, A. (2006). Climate change risk perception and policy preferences. *Climatic Change, 77*, 45–72.

Malka, A., Krosnick, J. A., & Langer, G. (2009). The association of knowledge with concern about global warming. *Risk Analysis, 29*, 633–647.

McCright, A.M. (2010). The effects of gender on climate change knowledge and concern in the American public. *Population and Environment, 32,* 66–87.

McCright, A.M., Dunlap, R.E. (2011). Cool dudes: The denial of climate change among conservative white males in the United States. *Global Environmental Change, 21*, 1163-1172.

Moran, M. (2011). Psychiatry needs eyes wide open about environmental issues. *Psychiatric News, 46*, 17.

Norgaard, K. M. (2011). *Living in denial: Climate change, emotions, and everyday life.* Cambridge, MA: Massachusetts Institute of Technology Press.

Norgaard, K., & York, R. (2005). Gender equality and state environmentalism. *Gender & Society, 19,* 506-522.

O'Brien, L. T., & Major, B. M. (2005). System-justifying beliefs and psychological well-being: The roles of group status and identity. *Personality and Social Psychology Bulletin, 31,* 1718-1729.

O'Connor, R. E., Bord, R. J., & Fisher, A. (1999). Risk perceptions, general environmental beliefs, and willingness to address climate change. *Risk Analysis, 19*, 461–471.

Rankin, L., Jost, J. T., & Wakslak, C. J. (2009). System justification and the meaning of life: Are the existential benefits of ideology distributed unevenly across racial groups? *Social Justice Research, 22,* 312-333.

Riechard, D. E., & Peterson, S. J. (1998). Perception of environmental risk related to gender, community socioeconomic setting, age, and locus of control. *Journal of Environmental Education*, *30*, 11-19.

Semenza, J. C., Ploubidis, G. B., & George, L. A. (2011). Climate change and climate variability: Personal motivation for adaptation and mitigation. *Environmental Health, 10*(46). (Epub ahead of print).

Saad, L. (2007). To Americans, the risks of global warming are not imminent. *Gallup Poll.* Retrieved April 9, 2007 from http://www.galluppoll.com/content/?ci=27100&pg=1

Shiva, V. (1989). *Staying alive: Women, ecology and development*. London: Zed Books.

Shrivastava, P. (1995). Industrial/environmental crises and corporate social responsibility. *Journal of Socio-Economics, 24,* 211-227.

Sidanius, J., & Pratto, F. (1999). *Social Dominance: An Intergroup Theory of Social Hierarchy and Oppression*. New York: Cambridge University Press.

Stern, P., Dietz, T, & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment & Behavior*, *25,* 322-348.

Stoll-Kleemann, S., O'Riordan, T., & Jaeger, C. C. (2001). The psychology of denial concerning climate mitigation measures: Evidence from Swiss focus groups. *Global Environmental Change, 11,* 107-117.

Sundblad, E-L., Biel, A., & Gärling, T. (2007). Cognitive and affective risk judgments related to climate change. *Journal of Environmental Psychology, 27,* 97-106.

Swim, J. K., Clayton, S., Doherty, T., Gifford, R., Howard, G., Reser, J., Stern, P., & Weber, E. (2009). Psychology and global climate change: Addressing a multi-faceted phenomenon and set of challenges. *A Report by the American Psychological Association's Task Force on the Interface between Psychology and Global Climate Change*.

Swim, J. K., Clayton, S., & Howard, G. S. (2011). Human behavioral contributions to climate change: Psychological and contextual drivers. *American Psychologist, 66,* 251-264.

Takacs-Santa, A. (2007). Barriers to environmental concern. *Human Ecology Review, 14,* 26-38.

Tjernström, E. & Tietenberg, T. (2008). Do differences in attitudes explain differences in national climate change policies? *Ecological Economics, 65*, 315-324.

Tranter, B. (2011). Political divisions over climate change and environmental issues in Australia. *Environmental Politics, 20*, 78-96.

Wakslak, C., Jost, J. T., Tyler, T. R., & Chen, E. (2007). Moral outrage mediates the dampening effect of system justification on support for redistributive social policies. *Psychological Science, 18,* 267-274.

Wang, A. Y. (1999). Gender and nature: A psychological analysis of ecofeminist theory. *Journal of Applied Social Psychology, 29*, 2410-2424.

Wehrmeyer, W. & McNeil, M. (2000). Activists, pragmatists, technophiles and tree-huggers?
Gender differences in employees' environmental attitudes. *Journal of Business Ethics, 28,*
211-222.

White, L., Jr. (1967). The historic roots of our ecological crisis. *Science, 55,* 1203-1207.

Whitley, B. E. (1999). Right-wing authoritarianism, social dominance orientation, and prejudice.
Journal of Personality and Social Psychology, 77, 126-134.

World Bank. (2009). Public attitudes toward climate change: findings from a multi-country poll.
World Development Report 2010: Development and Climate Change. Washington, D.C.

Zelezny, L. C., Chua, P., & Aldrich, C. (2000). Elaborating on gender differences in
environmentalism. *Journal of Social Issues 56,* 443-457.