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GENDER EQUALITY AND STATE ENVIRONMENTALISM

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There are several compelling reasons to expect that gender equality may serve to foster state environmentalism. However, most previous research on environmental politics has neglected gender. To help further our understanding of the connection between gender and environmental politics, the authors empirically assess the association between the representation of women in national Parliament and environmental treaty ratification, using a large sample of nations. The findings indicate that nations with higher proportions of women in Parliament are more prone to ratify environmental treaties than are other nations. The results point to the importance of considering the role of gender in analyses of state behavior and environmental politics and are consistent with the argument of some feminist theorists that the exploitation of nature and the exploitation of women are interconnected.

Keywords: *ecofeminism; environmental treaty ratification; state environmentalism*

Several leading contemporary social theorists identify environmental concern as a major factor leading to the reshaping of nation-states during the past century (Beck, Giddens, and Lash 1994; Spaargaren and Mol 1992). What are the factors that contribute to the development of “state environmentalism,” that is, state support for environmental protection? Various factors have been suggested, including the development of ecological rationality as part of modernization (Spaargaren and Mol 1992) and the rise of “postmaterial” values due to growing affluence (Inglehart 1990). Largely absent from these debates is awareness of, or attention to, the gendered nature of environmental politics. We seek to contribute to these debates by examining the role gender equality plays in the development of state environmental policy. Specifically, we perform a cross-national analysis examining the association between the percentage of national Parliament composed of women

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and national support for a selection of key international environmental treaties—the operationalization of state environmentalism used throughout this article.

There are a number of compelling reasons to bridge the existing gap between feminist theory and environmental sociology. In an unequal society, the impacts of environmental degradation fall disproportionately on the least powerful. Gendered divisions of labor, land, and other resources have meant that women have been uniquely and disproportionately affected by ecological destruction (Wangari, Thomas-Slayter, and Rocheleau 1996). Furthermore, the gendered division of society provides women with unique firsthand experiences of environmental problems. In the global North, women's social roles as caretakers in the home and community have drawn them into key roles in grassroots organizing efforts (Hamilton 1990). Scholars working in the field of women and development have described how in nations of the global South, the division of labor between women and men changed with shifts in the economic structure of production, such as the expansion of cash crops for the market, at the expense of subsistence crops for the family (Boserup 1970). Changes such as these benefited men while increasing the workload for women. Finally, feminist theory on environmental problems contributes to environmental sociology, deepening our understanding of the nature and meaning of sexual inequality, analyses of social movements, the dynamics of labor and capital, and theory of the state.

Does the degree of gender equality in the political realm within a nation have an impact on state environmental policy? Focusing on the nation-state, we aim to assess the association between gender equality and state environmentalism, as indicated by the ratification of international environmental treaties. We begin by reviewing feminist theories of the state and literature on the connections between gender and the environment, drawing out theoretical reasons to expect an association between gender equality and state environmentalism. Then, we empirically assess the association between gender equality and state environmentalism using a large sample of nations and interpret the implications of our findings. Finally, to illustrate the processes linking environmental and gender politics, we examine the connection between the politics of gender and the environment in two specific cases, Norway and Singapore.

GENDER AND THE ENVIRONMENT

Feminist theories of the state have not only addressed gendered impacts of state policy and the mobilization around gender in contesting state behavior but also challenged existing understandings of the state. A generation of feminist theorists has now argued that the state is both capitalist and patriarchal, described state formation as a gendered process (Cravey 1998), illustrated how gender is a category of social regulation in state policy (Randall and Waylen 1998), and made gender visible as a factor in the construction of different political regimes (O'Connor 1996). Indeed, gender is implicated in many facets of the state including a gendered

division of labor within state apparatus, gendered structures of power, and the interplay between social movements and state policies (Cravey 1998).

Existing work in the area of gender and the environment and ecological feminism suggests several reasons that nations with greater gender equality may be more prone to protecting the environment. These reasons roughly fall into two overlapping categories. First, numerous studies from environmental sociology, social psychology, and political science find a gender gap for environmental concern, values, and perceptions of environmental risks (Bord and O'Connor 1997; Davidson and Freudenburg 1996). This research indicates that women are more likely than men to express support for environmental protection and that women consider a variety of environmental risks, from nuclear power to toxic substances, to be more serious than do men. From another angle, a now considerable body of ecofeminist theory asserts that sexism and environmental degradation are interconnected processes. This perspective holds that the values, ideologies, institutions, and economic systems that shape human-environmental relationships are themselves gendered and describes how these factors enable sexism and environmental degradation in mutually reinforcing ways (Merchant 1980; Seager 1993). This second category of explanation ties both gender discrimination and environmental degradation to a common hierarchical social structure that simultaneously devalues both women and nature.

Both interconnected reasons suggest that gender equality may influence the environmental behavior of nation-states. Greater gender equality may have a simple numerical impact: If women tend to be more environmentally progressive, the inclusion of women as equal members of society—as voters, citizens, policy makers, and social movement participants—should positively influence state behavior. Furthermore, from the interlocking systems perspective, nation-states with greater gender equality on the whole are expected to take environmentally progressive stands due to the influence of gender on all state processes. Indeed, whether individual women vote for or against specific legislation, gender equality may affect behavior of both women and men, creating an atmosphere in which environmentally progressive state behavior is viewed as positive. For example, values of equality may affect state behavior with respect to both gender and environment. Yet so far, no quantitative empirical work has tested whether gender equality does in fact influence state behavior with respect to the environment. Our analysis builds on both feminist and environmental research in an attempt to assess the extent to which gender equality in national politics is associated with state environmentalism.

Consistent gender differences have been noted in the related areas of values and attitudes toward the environment, perception of environmental risks, and social movement participation. Why such differences exist is not yet clear. The notion that women have different values than men has been the subject of at least 20 years of feminist theorizing and research (Gilligan 1982). Explanations for the gender gap in environmental concern have built on this work, suggesting, for example, that women are more concerned about the environment because they have been socialized to be family nurturers and caregivers (Hamilton 1990).

The pattern of gender differences in environmental values and beliefs appears to hold cross-nationally, at least in those nations where studies have been conducted: Szagun and Pavlov (1995) found that German and Russian girls had higher levels of environmental awareness than boys; in Australia, girls exhibited greater environmental responsibility than did boys when socioeconomic levels were held constant (Hampel, Boldero, and Holdsworth 1996); and in Norway, Strandbu and Skogen (2000) found that while boys and girls were equally concerned about the environment, girls were more likely to join environmental organizations. Similar results have been found in Spain (Navarro 1998), Jordan (Reid and Sa'di 1997), and France (Brenot, Bonnefous, and Marris 1998).

Women also perceive various hazards as more risky than do men (Flynn, Slovic, and Mertz 1994). Furthermore, research suggests that women are less willing than men to impose health and environmental risks on others. For example, Barke, Jenkins-Smith, and Slovic (1997, 167) found that "women scientists perceive significantly more risk from both nuclear power and waste and are less tolerant of imposing risks onto others than their male counterparts, even when age, training level, and attitudes towards technology are controlled." If women both perceive environmental risks as greater and are less willing to impose these risks on others, higher status of women may lead to more environmentally progressive policies as women put their views and values into action.

Women have been estimated to make up 60 to 80 percent of membership in mainstream environmental organizations and even higher percentages in grass-roots movements (Seager 1996). If women are more prone to supporting the environmental movement than are men, increased representation of women in government might be expected to influence the behavior of nation-states with respect to the environment. We are agnostic as to the reasons for the types of gendered differences discussed here but argue that these empirically demonstrated differences have the potential to influence national politics.

Some scholars argue that institutions and social practices are themselves gendered (Acker 1990). Ecofeminist theorists describe cultural and historical associations between women and nature (e.g., Gaard 1998; Merchant 1980), the way in which such associations have caused the actual lives of women to be closely intertwined with nature (Mies and Shiva 1993), and the ways these constructions have facilitated the domination of both women and nature (Merchant 1980; Norgaard 1996; Warren 1992). From this perspective, both gender discrimination and environmental degradation result from common social structural elements. Warren (1992) described a common ideology or "logic of domination" underlying the exploitation of nature and the oppression of women. Mies and Shiva (1993, 4) described how the contributions of both the natural environment and women to the perpetuation of society are invisible under capitalism: "The neglect of nature's work in renewing herself, and women's work in producing sustenance in the form of basic, vital needs is an essential part of the paradigm of maldevelopment, which sees all work that does not produce profits and capital as non or unproductive work." This configuration is most visible in the global South where many nations

have high levels of dependence on foreign capital. Regardless of their origin, a link between gender equality and the environmental behavior of nation-states is implied by the assertion that sexism and environmental degradation reinforce one another. This view is parallel to developments in feminist theory that link types of oppression based on race, class, and gender. In a stratified society, incentives for environmentally damaging activities are built into the social system as a whole. This occurs because powerful groups or individuals can force the less powerful to pay the costs of environmental degradation, as is the case when young girls are employed in dangerous situations in factories because they are seen as passive and less likely to organize or when toxic materials are produced and disposed of in poor communities. The presence of sexism (as well as poverty and racism) enables social elites, corporations, and industry to maintain an appearance of progress and success while engaging in activities that are damaging not only to individual communities but to global ecological systems as well.

If sexism and environmental degradation stem from common structural elements and/or are mutually reinforcing, nation-states with greater gender equality will likely be more prone to supporting environmental protection. Ecofeminist theory implies at least three specific ways in which gender equality may be linked to environmental degradation. First, nation-states with greater gender inequality may be less environmentally responsible due to the hegemony of the logic of domination. Second, due to the presence of parallel social and historical constructions of women and nature, nation-states with greater gender inequality may be less concerned with environmental protection. Finally, the parallel valuing or devaluing of the reproductive labor of women and of the natural environment will likely affect both gender equality and state environmentalism.

DATA AND METHOD

Since there are clear theoretical reasons to expect that gender equality may be connected to support for environmental protection, we empirically assess the relationship between representation of women in Parliament and state environmentalism. We use state participation in international environmental treaties as our indicator of state environmentalism—a widely accepted approach (Dietz and Kalof 1992; Frank 1999; Roberts 1996). In particular, we use a scale developed by Roberts and Vásquez (2002) based on ratification of 16 multilateral environmental treaties (through April 1999).¹ This scale is derived from a principal components analysis where each treaty is treated as a dummy variable (0-1), indicating whether or not the treaty was ratified. The score on the first principal component is the dependent variable in our analysis.²

Since the treaties in the index have been in existence for various amounts of time and since the process of ratification within any one nation can take many years, there is no single clearly appropriate year for data on the independent variables. We take the conceptual position that the dependent variable is an indicator of state

support for environmental policies for the general period of the late twentieth century. Likewise, the independent variables, although coming from one point in time, are used as indicators of general national characteristics in the late twentieth century. This is a reasonable position since structural positions in the global economy and national proclivities for social equality are fairly stable over time (Bergesen and Bata 2002).

Our key independent variable is the percentage of legislator positions in national Parliament occupied by women in 1999 as reported by Prescott-Allen (2001). This variable measures the number of women in the upper house of Parliament. While we recognize that women's representation in Parliament may not always be the best indicator of women's social and political power, we are not aware of a better cross-national indicator. Following the lead of the UN Commission on the Status of Women, we consider the percentage of women in Parliament as a key indicator of a nation's gender politics. Other existing cross-national measures of social, political, or economic equality, such as fertility rates, percentage of women in the labor force, or female heads of state, are too problematic in terms of data availability, accuracy as measures of gender equality, or imposition of Western cultural assumptions about gendered behavior expectations. The observed range of the representation of women in Parliament variable for our sample of nations is from a low of 0.0 in Jordan and Kuwait to a high of 42.7 in Sweden (mean = 11.8, standard deviation = 8.9). Table 1 presents a selection of countries and their scores and ranks on the gender equality variable and the state environmentalism variable. These nations were selected for illustrative purposes because they are the most populous nations in the world (e.g., China, India, Indonesia, and the United States), have highly influential economies (e.g., Japan), represent the breadth of scores on both the representation of women in Parliament variable (e.g., Sweden and Kuwait) and the state environmentalism variable (e.g., Spain and Kyrgyzstan), and/or are illustrative of different regions of the world or various levels of national economic development.

To distinguish gender equality from overall social and political freedom, we control for political rights and civil liberties using the freedom index developed by Freedom House (1997). This variable ranges from 0 (*low freedom*) to 12 (*high freedom*) and indicates whether a nation is governed by democratically elected representatives; has fair, open, and inclusive elections; has freedom of the press, assembly, and demonstration; has general personal freedoms; and has freedom of private organizations.³ We also include an indicator of national commitment to neoliberal economics and a dummy variable that indicates whether a nation is considered to have a capitalist economy.⁴

Since gender equality is associated with indicators of economic development and modernization, we include a series of independent variables to control for the possible effects of these other factors so as to estimate the independent association between gender equality and state environmentalism. As basic indicators of development, we use per capita GDP in purchasing power parity (1997), the percentage of the population living in urban areas (1995), and the percentage of GDP in the service sector (1997).⁵ Since it is often argued that integration into the global economy

TABLE 1: Selection of Nations and Their Scores and Ranks (1-130) on the Gender Equality Variable (Percentage of National Parliamentary Positions Occupied by Women) and the State Environmentalism Variable (Based on Ratification of Environmental Treaties)

<i>Country</i>	<i>Gender Equality (Rank)</i>	<i>State Environmentalism (Rank)</i>
Sweden	42.7 (1)	206.8 (10)
Denmark	37.4 (2)	270.1 (3)
Norway	36.4 (4)	235.7 (7)
The Netherlands	36.0 (5)	283.1 (2)
South Africa	30.0 (8)	78.2 (32)
China	21.8 (15)	46.6 (43)
Spain	21.6 (16)	312.0 (1)
Mexico	18.2 (24)	166.4 (13)
United States	13.3 (41)	172.8 (11)
India	9.0 (70)	78.5 (31)
Indonesia	8.0 (79)	8.8 (64)
Russia	7.7 (86)	156.8 (14)
Brazil	5.7 (98)	46.6 (44)
Japan	4.6 (104)	98.7 (30)
Singapore	4.3 (106)	-63.6 (103)
Bhutan	2.0 (119)	-173.0 (129)
Kyrgyzstan	1.4 (124)	-173.0 (130)
Jordan	0.0 (129)	20.2 (55)
Kuwait	0.0 (130)	-56.0 (96)

and position in the world system play substantial roles in determining support for international treaties (Roberts and Vásquez 2002), we include two indicators of position in the global economy: foreign direct investment as a percentage of GDP (1995-1997) and official development assistance and official assistance as a percentage of GDP (1995-1997).⁶ To further control for national power, we include the natural logarithm of population (1996).⁷

Our sample ($N = 130$) includes all nations for which data are available. These nations include approximately 92 percent of the world's population and 95 percent of the world's economic activity circa 1997. We use ordinary least squares regression.

RESULTS AND DISCUSSION

The results of our analysis are presented in Table 2.⁸ The model provides a good fit, explaining 69 percent of cross-national variance in state environmentalism. The results indicate that consistent with the expectation derived from theories of gender and the state discussed above, societies with greater representation of women in Parliament are more prone to ratify environmental treaties.⁹ In fact, the gender variable has a stronger association with state environmentalism than any other factors

except per capita GDP and population, as shown by the beta weights (standardized regression coefficients). Economic development, political freedom, and population have significant positive associations with state environmentalism. Foreign direct investment as a percentage of GDP has a significant negative association with state environmentalism, indicating that nations more influenced by foreign capital are less likely to ratify environmental treaties. In addition, capitalist nations are significantly more likely than noncapitalist nations to support treaty ratification. Service sector development, urbanization, and official development assistance do not have significant associations with state environmentalism.

Although somewhat beyond the scope of the present discussion, the finding that foreign direct investment reduces state environmentalism has important implications. It suggests that attracting foreign capital is at odds with environmental reform, at least in the form of environmental treaty ratification. Although our results do not allow for specific conclusions on this matter, this finding is consistent with the argument that the logic of domination (as represented by foreign capital intrusion) runs counter to environmental protection.

On another point, the results taken together indicate that modernization and development generally lead to greater support for environmental treaties. However, the significance of this finding must be interpreted with caution since there is strong evidence that modernization and development also lead to an escalation of environmental degradation (York, Rosa, and Dietz 2003). Furthermore, although these results show capitalist nations are more likely than other nations to participate in environmental treaties, a substantial body of scholarship suggests that capitalism is ecologically unsustainable, both increasing the scale of environmental exploitation and disrupting natural systems (Bellamy Foster 1999; O'Connor 1998; Schnaiberg and Gould 1994). There appears to be an ironic situation where states that cause the greatest environmental impacts are the ones most likely to support environmental treaties (York and Rosa 2003). Following from this, it is clear that one should not assume that states that demonstrate environmental concern by participation in environmental treaties are necessarily environmentally responsible. These results may be due to the dominance of capitalist nations in the modern world system, where treaty development is largely controlled by core capitalist nations and less developed nations and noncapitalist nations are less connected to the international community. However, the exact reasons for these results remain unclear and are beyond the scope of our focus here. With respect to our findings for gender, discussed below, these results suggest that further research is necessary to establish whether gender equality contributes to not only state support for environmental treaties but actually to genuine environmental protection.

Our results clearly suggest that the representation of women in national Parliament may contribute to the development of state environmentalism. Feminist theory of the state indicates a variety of ways that gender informs state policy. The several lines of theory on gender and the environment discussed above predict that gender equality should positively influence state environmentalism. Although the results do not tell us the specific reasons for this influence, they are consistent with

TABLE 2: Predictors of Environmental Treaty Ratification (Ordinary Least Squares Regression)

<i>Independent Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>Beta Weight</i>
Women's representation	2.46**	.73	.21
GDP per capita	4.30**	1.22	.30
Percentage GDP in service	.90	.58	.11
Foreign direct investment (percentage of GDP)	-9.12*	4.51	-.12
Official development assistance (percentage of GDP)	-2.85	2.27	-.09
Capitalist	31.29*	13.02	.14
Percentage urban	.26	.34	.06
Ln (population)	20.27**	3.86	.30
Political freedom	4.44*	2.05	.16
Constant	-458.42**	73.10	
R^2	.69		
<i>N</i>	130		
Mean variance inflation factor	1.86		
Highest variance inflation factor	2.82		

* $p < .05$. ** $p < .001$ (two-tailed tests).

the fact that women have more pro-environmental values, are more risk averse, and participate more frequently in environmental movements than do men. Our results are also consistent with theoretical claims by feminist theorists that sexism and environmental degradation are interconnected processes, stemming from common structural elements, and/or are mutually reinforcing. The results of our analysis suggest that gender differences in environmental concern, risk perception, and social movement participation—heavily studied in themselves—may have broader social implications, such as potentially influencing state policy. In 1990, the UN Commission on the Status of Women estimated that for women to influence key outcomes and be taken seriously, a threshold of 30 percent women in Parliament was required. As of 1999, only 8 of the 130 nations met this threshold: Denmark, Germany, Finland, Iceland, the Netherlands, Norway, South Africa, and Sweden. As Caprioli (2000) noted, this situation suggests that the percentage of women in Parliament may become an even more significant factor in state behavior if women gain greater political power in the future.

The mechanisms by which gender equality is linked to state environmentalism remain unclear. Differences in political participation of women to a large extent reflect the gender regime in a given society. Yet it remains difficult to assess what such differences mean or to make a definitive link between these patterns on a cross-national scale. It may be that the development of gender equality and state environmentalism are driven by similar forces and are therefore not directly connected to one another. For example, it could be argued that the forces of modernization drive both gender equality and treaty ratification. This specific argument is

implausible based on our results, since we found a correlation between gender equality and state environmentalism even when controlling for GDP per capita, urbanization, and political freedom (all arguably indicators of economic and/or political modernization), but other forces not captured by variables in our model—for example, subtle aspects of world system position, or the relative success of liberal political parties—could account for the observed gender-environment association. Our results, then, do not necessarily establish that gender equality has a direct causal influence on state environmentalism, although they are consistent with such an argument. However, our results do clearly suggest that gender equality and state environmentalism are linked and that an understanding of one may contribute to an understanding of the other.

Through specific examples, we can begin to shed light on how gender may shape the process of treaty ratification. We pick two cases to focus on, Norway and Singapore, to illustrate in greater depth the connections between gender equality and support for environmental treaties. We focus on these two nations because they are both affluent, developed nations but show strikingly different levels of support for environmental treaties and gender equality. On the positive end of the spectrum, the nation of Norway ranks highly on both measures of women in Parliament and environmental treaties. Norway is a world leader on many indicators of women's political and social empowerment as well an environmental leader on many fronts. In the context of our study, Norway both had one of the highest percentages of women in Parliament in the world at 36.4 percent and ratified 13 of the 16 treaties considered here. On another end of the spectrum, we find Singapore. While also a nation with a high level of industrialization and material standard of living, Singapore does poorly on both measures of women in Parliament and the behavior of the state with respect to the environment. In Singapore during the period our data cover, women held only 4.3 percent of legislative positions in Parliament, and Singapore ratified only 4 of the 16 treaties considered here.

In Norway, there is a clear historical connection between political support for environmental protection and support for gender equality. Focusing, for example, on the Convention on Long Range Transboundary Air Pollution (signed by Norway in 1979), we can see that a link between gender equality and the nation's environmental behavior appears to play out in at least three different ways. At the time of the ratification of this convention, women made up 24 percent of the national Parliament, and the minister of the environment was Gro Harlem Brundtland. The parliamentary vote for the treaty was unanimous, so the argument that women are more likely to vote Green does not appear to apply directly here. However, despite the lack of a gender split on the vote, there are several important links between gender politics and the environment in Norway at that time. First, the environmental and women's movements were formalized into the legal system during the same time period in Norway. Pro-environmental statutes such as this and other international conventions and gender-equality legislation, including the Gender Equality Act (1978), both came onto the scene during the late 1970s and early 1980s.

Second, these legislative acts by the Norwegian state were supported by underlying cultural and social conceptions of equality. At least in Norway, the notion of equality links an emphasis on equality for women and concern for the environment across Norwegian society. The achievement of equality between classes and sexes has been an expressed central aim of government policy since the 1940s. Despite current political trends, Norway retains a highly developed welfare state and a generally high quality of life for all citizens (e.g., good access to health care, high human rights, low poverty and unemployment rates). The notion that gender equality and environmental concern are linked is the epitome of the interlocking perspective on the relationship between gender and environment in which societies that are more environmentally responsible are less sexist (Warren 1992).

Finally, the actions and political language of one key political figure exemplify the link between gender issues and environmental issues in Norway. Gro Harlem Bruntland, probably one of Norway's most popular and influential political leaders in recent times (prime minister from 1986 to 1989 and 1990 to 1996), was a leader on both gender issues and environmental issues during her political career. Bruntland herself makes the link very powerfully between gender and the environment, blending her focus on women's rights and concern for the environment with issues of human health, children, and future generations in her political career and public speeches:

Throughout human history, a sense of responsibility for the future of our own children and grandchildren has always been an inherent part of human nature. As this century draws to a close people have altered the earth and the altered earth has changed people's lives to an unprecedented degree. . . . We all recognize the signs of the global crisis now approaching. Global warming, depletion of the ozone layer, continued population growth, massive loss of species and biological diversity, acceleration of deforestation and desertification—these are all threats which will soon lead to breakdowns in vital support systems for life on earth. . . . Our foremost responsibility towards future generations is to ensure that there will be a future world worth living in. The future generations are knocking at our door today. Since they cannot take care of their own destiny, we must do so on their behalf. (Bruntland 1991)

Bruntland's own political career weaves together developments for women and the environment in Norway and internationally. Her emphasis on the connections of human health and responsibility for future generations with environmental issues follows the pattern of strong women's leadership on environmental issues where human health is at stake. In 1983, as minister of environment, Bruntland established and chaired the World Commission on Environment and Development. As prime minister, Bruntland placed record numbers of women in her cabinet and passed significant legislation on both gender and the environment. Bruntland never had fewer than 8 women in her 18-member cabinet, fought to get legislation passed in Norway legalizing abortion, and spoke at the Fourth World Conference on Women in Beijing, China, in 1995. Similarly, in her more recent position as chief of

the World Health Organization, she made explicit links between issues of gender inequality and human health.

Brundtland has undoubtedly been a key actor defining the political landscape in Norway during the past two decades. Her actions and political speeches set the tone for state decisions regarding both gender and the environment. Although Brundtland is clearly a powerful figure, her popularity with the Norwegian public speaks to her ability to tap into the widespread social values of equality and environmentalism. Furthermore, the rhetoric she used to achieve this agenda points to both the cultural salience of connections between gender equality and environmental protection and the relevance of cultural explanations for political outcomes. Norway continues to take the lead on this convention and many other environmental issues and currently has one of the highest rates of participation of women in government in the world. Note that these are cultural rather than additive or structural explanations for the influence of gender equality on state environmentalism.

Singapore provides a contrast with Norway in several respects, particularly on levels of gender equality and environmental treaty ratification. Singapore's environmental record is generally poor, even beyond the failure of treaty ratification. For example, per capita emissions of carbon dioxide in 1999 were 13.6 metric tons, more than three times the world average of 3.9 metric tons (for comparison, Norway emits about 8.3 metric tons per capita) (World Resources Institute 2003). The recent Environmental Sustainability Index presented to the World Economic Forum ranked Singapore as holding among the 10 worst environmental records (Yale Center for Environmental Law and Policy 2002). The political climate is difficult for nongovernmental organizations due to the level of state control of society, and there is only one formal environmental organization: The Nature Society. Overall, Singapore has pursued a strongly prodevelopment economic strategy, and rates of high consumption as well as poor state environmental behavior correspond to the low rate of environmental treaty ratification.

The situation for women is similarly challenging. Not only is the percentage of women in Parliament well below the 30 percent threshold advised by the United Nations, but even if women wanted to exert a more pro-environmental agenda in Singapore, their ability to do so is limited as women parliamentarians have few opportunities to pursue agendas outside the party's main agenda (Lyons in press). This inability of women to pursue their own agendas further minimizes any impact of gender differences in values or risk perceptions on environmental decision making. And the lack of women in Parliament corresponds to high gender inequality within the society as a whole. Little research or documentation exists for the conditions of women's lives in Singapore (i.e., wage disparity, domestic violence, etc.). Furthermore, few resources exist to address women's concerns. Singapore has only one official women's organization: The Association of Women for Action and Research. Yet even the activities of this group are limited due to the state's requirement that the organization be of a "social" rather than political nature (Lyons 2000). In fact, during the 1990s, former prime minister Lee Kuan Yew stated that he regretted granting women equal rights during his administration. While it is difficult to

draw a predictive link, or even gather information, on why an action failed to occur, we clearly see that gender equality and the environmental behavior of the state are both poor in Singapore. The case of low status of women and poor environmental record in a modernized nation such as Singapore is important because it defies the notion that environmental values and gender equality naturally follow wealth and modernization (e.g., Inglehart 1990).

The cases of Norway and Singapore allow us to glimpse more detail concerning relationships between gender inequality and state environmentalism on the ground. Although there are differences in their levels of foreign investment and status as core nations, Norway and Singapore are modern nations with high material standards of living yet very different outcomes in terms of the representation of women in Parliament and the ratification of environmental treaties. The contrasting situation in these two nations illustrates how gender and the environment may be linked across a variety of cultural and economic circumstances. Data are most readily available for wealthy nations, but similar cases could be explored for less developed and poor nations. Other countries with low scores on both percentages of women in Parliament and treaty ratification include Kuwait, Togo, Uzbekistan, Yemen, Armenia, Ethiopia, Chad, and Haiti.

Future research should be directed at better understanding the impacts of all forms of inequality on the environmental behavior of nation-states. Additional and improved data on the global status of women and gender equality would aid in this process. Ecofeminist theory suggests that this link between gender and environmental behavior of nation-states goes beyond gender equality to social equality more generally. The development of similar measures of racial inequality would allow researchers to better understand the relationship between both gender and racial inequality and environmentalism.

Indeed, several studies from the United States that have included both gender and race in their analyses find that the gender differences in environmental concern that are visible for whites do not hold for other racial groups (Flynn, Slovic, and Mertz 1994). For example, recent work by Kalof et al. (2002) examined values and pro-environmental beliefs of whites, Blacks, and Hispanics. They found that white men differed from all others in perceiving risks as smaller and more acceptable. The finding that gender and race are both relevant in the United States suggests that environmental orientations may be linked to aspects of power and privilege. If, as Kalof et al. suggested, the views of white men result from their historically privileged position in terms of risk and power in society, societies with greater overall equality might also be expected to be more environmentally friendly. Such an outcome is predicted by ecofeminist theory based on the logic of domination.

CONCLUSION

What factors lead to the development of state environmentalism? Although various answers to this question have been proposed by social theorists, the influence of

gender on the state and the role of gender equality in environmental politics have not received substantial attention.

Our results clearly show that nation-states with a greater proportion of women in national Parliament, controlling for other factors, typically are more prone to environmental treaty ratification than other nations. We reviewed a number of compelling theoretical reasons to expect that nations where women have greater political power will be more inclined toward supporting environmental protection. These reasons include the fact that women have more pro-environmental values, are more risk averse, are more likely to participate in social movements, typically suffer disproportionately from environmental degradation, and sexism and environmental degradation can be mutually reinforcing processes.

These results suggest that theories of gender can contribute to both our understanding of state behavior and the relationship between society and the natural environment. In particular, improving gender equality may serve to further ecological reforms, as ecofeminists have theorized. These results also support ecofeminist arguments that societies with higher levels of gender equality are more supportive of environmental protection. Global efforts aimed at developing environmental policies should therefore concentrate more on improving the status of women, including especially those efforts aimed at increasing women's political representation. Gender deserves further consideration by macro-comparative researchers in their analyses. Our results point to the important contributions feminist theory can make to empirical work in environmental sociology.

NOTES

1. The 16 conventions (with year of establishment in parentheses) are Regulation of Whaling (1946), Prevention of Pollution of Sea (1954), Conservation of High Seas (1958), High Seas (1958), Civil Liability for Oil Pollution (1969), Wetlands (RAMSAR) (1971), World Heritage (1972), Marine Pollution (1972), Endangered Species (CITES) (1973), Marine Pollution—Land Based (1974), Migratory Species (1979), Air Pollution (1979), Ozone Layer (1985), Montreal Protocol (1987), Oil Pollution Preparedness (1990), and Environmental Impact Assessment (1991).

2. We multiplied the original score by 100 to scale coefficients so that they are easier to present. For the 130 countries used in our analysis, the treaty variable ranged from -173.0 (very low environmentalism) to 312.0 (very high environmentalism) (mean = 21.8, standard deviation = 101.7). Roberts and Vásquez (2002) presented an alternative scale that is simply the total number of the 16 treaties that each nation ratified (mean = 6.9, standard deviation = 3.4). This variable is very highly correlated ($r = .995$) with the principal component, indicating that which scale is used will make little difference to our findings.

3. Controlling for general economic inequality within each nation may also be important. The Gini index is a widely used estimate of income inequality, but unfortunately, values have not been estimated for many nations, and the inclusion of it in our model would reduce the sample size substantially. We therefore do not include the Gini index as a control variable in the model presented here, but we do note below its effects on the model if included (see note 9).

4. Data are from Freedom House (1997). Nations listed as "capitalist," "mixed-capitalist," or "capitalist-statist" are coded as 1; all other nations are coded as 0.

5. The GDP data and the service sector data are from World Resources Institute (2000). The urbanization data are from World Resources Institute (1996).

6. The data for both of these variables are from World Resources Institute (2000).

7. Data are from United Nations Population Division (1998). We use the natural logarithm of population because we do not expect that the relationship between population and treaty ratification is linear. Analyses not presented here indicate that this is an appropriate specification.

8. Both the mean variance inflation factor and the highest variance inflation factor (see Table 2) are well within accepted standards, indicating that there is not substantial multicollinearity in the model. We have done two analyses to test for the robustness of our findings. First, we estimated the model using a robust regression procedure (iterative Huber-biweight) that reduces the influence of outliers in residuals and is not dependent on the assumption of normal errors. Second, we estimated the model with the number of environmental treaties each nation ratified (a count variable) as the dependent variable using Poisson regression. The results from both of these analyses are substantively highly similar to the ordinary least squares results presented here, with the women's representation variable being statistically significant and having an effect of similar magnitude.

9. To test for the association of general economic inequality with state environmentalism, we have also estimated the model presented here including the Gini index (World Resources Institute 2003). When the Gini index is included in the model, it has a small and nonsignificant effect. Furthermore, it does not substantively alter the other results reported here. In particular, the association of women's representation remains statistically significant and of similar magnitude. We do not present the analysis with the Gini index as our main model because data on the Gini index are missing for a large number of cases (the inclusion of the Gini index decreases the sample size to 107).

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