



# Gender Bending and Gender Conformity: The Social Consequences of Engaging in Feminine and Masculine Pro-Environmental Behaviors

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## Abstract

Although pro-environmental behaviors (PEBs) have been characterized as feminine, some PEBs are masculine suggesting that gender bending (e.g., engaging in pro-environmental behaviors inconsistent with one's own gender) and gender conformity (e.g., engaging in pro-environmental behaviors consistent with one's own gender) are possible for both women and men. Social consequences for gender bending versus conformity with PEBs were assessed in three studies. Gender bending created uncertainty about an actor's heterosexual identity (Studies 1 and 2). Consistent with stigma-by-association, actors' gender bending influenced judgments about an actor's friend's sexual identity (Study 2). However, gender bending had limited effects on ascription of gendered traits: More feminine than masculine traits were ascribed to PEB actors, even actors of masculine PEBs (Studies 1 and 2). Consistent with social ostracism, Study 3 illustrated that men were most likely to socially distance themselves from female gender benders, likely as a result of prejudice against gender-bending women. In contrast, women preferred to socially interact with gender-conforming women, likely resulting from a combination of their greater interest in feminine than masculine PEBs and preferring to interact with women more so than with men. Social repercussions are discussed in terms of stigmatizing engagement in PEBs.

**Keywords** Sex roles · Environmental psychology · Stigma · Masculinity · Femininity · Conservation (ecological behavior) · Sexual identity

The toll of human behavior on the health of the Earth indicates a need for more behavior that benefits the environment (Millennium Ecosystem Assessment 2019). As positive contributions to a healthy environment, pro-environmental behaviors (PEBs) diminish contamination of the environment or reduce overuse of its resources. Our collective ability to live in a more sustainable world depends evermore on PEBs (Vandenbergh and Gilligan 2017). Much research focuses on predictors of a particular PEB or PEBs in general. But there are a vast array of PEBs people can choose to do, each having multiple features that influence the likelihood that people will choose to do them (Truelove and Gillis 2018). Thus, it is

important to identify characteristics of behaviors that influence not only the likelihood of doing PEBs but also features that influence choices among PEBs.

One understudied feature of PEBs is their gendered nature. Certain PEBs align with women's gender roles and other PEBs align with men's gender roles and, as with other gender role behaviors and as described by social role theory (Eagly and Wood 2012), one might expect gender differences in engagement in PEBs to align with gender roles (Boudet et al. 2016; Carlsson-Kanyama and Lindén 2007; Dahl et al. 2013; Hunter et al. 2004). Using alignment with gender roles as a behavioral criteria can mean that people do not attend to what some would argue are more important PEB criteria, such as the degree of impact different behaviors have on the environment (Dietz et al. 2009), and they can limit behavior options, countering the need for people to engage in more PEBs. Further, conformity to gender roles can mean that responsibility for doing PEBs is not shared within a household. Carlsson-Kanyama and Lindén (2007) argue that this often results in women taking on more extra burdens associated with new PEBs in a household than men do.

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Social role theory posits that key drivers for conformity to gender roles are rewards for conforming to gender role norms and penalties for deviating from these roles (Eagly and Wood 2012). This suggests that a precursor for understanding gender differences in PEB preferences is to examine social consequences for engaging in PEBs consistent with one's own gender (gender conformity) and engaging in PEBs inconsistent with one's own gender (gender bending). It should be noted that we are not assuming that PEB gender bending is being done as an activist behavior, rather we use the term to identify behaviors that bend socially generated rules derived from gender roles that prescribe different behaviors for women and men.

Identifying social consequences for gender conformity and gender bending based upon matches between one's gender and preferences for gendered PEBs is the purpose of the present research. We first review research on the gendered nature of PEBs. Second, we review research on the social consequences of engaging in PEBs. Third, we review our proposal for social consequences for engaging in gendered PEBs.

## Gendered pro-Environmental Behaviors

Environmentalism can be understood as grounded in caring for the planet and those harmed by environmental problems (Bloodhart and Swim 2019). This characterization aligns environmentalism with traditional female gender roles because caretaking is a central component of traditional feminine roles and stereotypes (Diekmann and Eagly 2000). The feminization of environmentalism was made explicit in the United States, and perhaps other countries such as Britain, during the progressive era when women lead efforts to clean up urban environments as a way to care for urban poor and children. As a further illustration, men who engaged in efforts to protect the environment were mocked for being feminine in events documented through the twentieth century (Rome 2006). Plus, some argue that women are more likely to engage in PEBs because caring for the planet is consistent with gender role socialization practices (Zelezny et al. 2000). Consistent with these characterizations, people explicitly and implicitly associate green consumer products with women and ascribe feminine traits to people who use reusable grocery bags more so than to people who use plastic bags (Brough et al. 2016).

Although all pro-environmental behaviors represent ways to care for the planet, there are a plethora of ways to do so, some of which align with feminine roles and others with masculine roles. Private sphere PEBs that focus on household behaviors, such as recycling or sustainable food purchasing, align with feminine roles (Hunter et al. 2004). Consistent with gender role conformity predicted by social role theory, across 22 countries, women were more likely than men to engage in three private sphere PEBs examined in this particular study

(Hunter et al. 2004). Further, in another study, women reported being more willing than men to engage in ten different private-sphere PEBs that had been previously identified as associated with women more than men (Dahl et al. 2013). However, other PEBs are consistent with masculine role norms. A nuanced assessment of PEBs reveals that some private sphere behaviors are associated with traditional masculine behaviors (e.g., changing furnace filters or caulking windows; Boudet et al. 2016). Public sphere PEBs that focus on actions outside households, such as being a member of an activist group or protesting, also align with masculine roles (Hunter et al. 2004). In contrast to gender differences in feminine private behaviors, there are no gender differences in willingness to engage in ten PEBs previously identified as being associated with men more women (Dahl et al. 2013) and willingness to engage in three public sphere PEBs (Hunter et al. 2004),

The lack of gender differences on masculine private-sphere PEBs and public-sphere PEBs suggests that the more masculine nature of some PEBs may encourage men's willingness to do the behaviors and/or discourage women from engaging in them. However, the reasons why there are gender differences on some PEBs and not others have not been well documented. Consistent with social role theory (Diekmann and Eagly 2008), we propose that it is important to understand the social consequences of engaging in PEBs to begin understanding these results as well as to understand the experiences of those who choose to engage in gender-bending and gender-conforming PEBs.

## Social Consequences

Past research suggests that social consequences of engaging in PEBs can encourage willingness to engage in publicly visible PEBs, particularly if one identifies as an environmentalist. Griskevicius et al. (2010) argued that engaging in public PEBs has reputational benefits. They argue that a desire for social status explains their demonstration that people have a greater willingness to engage in PEBs publicly over privately, especially when the PEBs are expensive (Griskevicius et al. 2010). They note that social status is gained by publicly signaling that one is willing to make sacrifices for the greater good. PEBs can also signal an environmental identity leading environmentalists to engage in visible PEBs and those who reject this identity to be unwilling to engage in visible PEBs (Brick et al. 2017). These results suggest that environmentalists expect favorable responses from their ingroup if they engage in PEBs but those who reject an environmentalist identity expect negative responses from their ingroup members if they engaged in PEBs. These two studies highlight that social consequences for PEBs are dependent upon which PEBs individuals select (expensive vs. inexpensive) and the expected social

consequences from signaling their social identity. We propose that gendered PEBs can have different social consequences based on whether the PEBs are feminine or masculine because of the gendered social identities they may signal.

It is important to identify social consequences for engaging in gendered PEBs because, as with other gendered behaviors, women and men may be sensitive to social consequences derived from engaging in gendered PEBs and alter their behaviors based upon these social consequences (Diekmann and Eagly 2008). For example, men are less likely to purchase green products and more likely to eat meat when they are motivated to counteract appearing feminine (Brough et al. 2016; Pohlmann 2015). Similar to men's avoidance of feminine PEBs, research on gendered behaviors indicates that women avoid appearing masculine due to fear of social repercussions (Rudman and Fairchild 2004). Thus, although PEBs may be expected to incur positive social consequences such as social status (Griskevicius et al. 2010), particularly from environmentalists (Buck et al. 2013), people may anticipate negative consequences when doing so signals that they are gender bending. In the present research, in order to assess social consequences of engaging in gendered PEBs, we asked people to judge the gender traits and sexual identities of others who engaged in gendered PEBs and assessed whether their desire to engage in conversations with people was impacted by another person's interest in gendered PEBs.

## Social Consequences of Gendered PEBs

We draw upon research on gender stereotypes, judgments of sexual identity, the stigmatization of gender and sexual minorities (GSMs), and social role theory to form our hypothesis about the types of social consequences women and men will receive for engaging in gendered PEBs. First, because of close alignment among components of gender stereotypes (Deaux and Lewis 1984; Haines et al. 2016), feminine and masculine traits may be ascribed to actors when they engage in feminine and masculine PEBs, respectively. Second, because gender markers are used as cues to sexual identity (Rule and Alaei 2016), a social consequence for PEB gender bending may be judgments of actors' sexual identity. Third, judgments about sexual identity may be extended to those who associate with people who engage in gender-bending behaviors. Because being a GSM is considered a social stigma, this social consequence is an example of stigma-by-association (Filip-Crawford and Neuberg 2016; Goffman 1963; Pryor et al. 2012). Fourth, as a form of backlash against gender bending (Rudman and Fairchild 2004) or concerns about social contagion possibly due to concerns about stigma-by-association (Filip-Crawford and Neuberg 2016), women and men may socially distance from those with interests in gender-bending PEBs.

## Gendered Traits

Correlations among gendered trait ascriptions, physical appearances, role behaviors, and occupations demonstrate that there are strong perceived links among core components of gender stereotypes that have not changed over time (Deaux and Lewis 1984; Haines et al. 2016). Applying this research to understanding PEBs, these associations suggest that the gendered nature of their PEBs will influence gendered traits ascribed to actors of PEBs. This is confirmed by the tendency, as we noted above, to ascribe feminine traits to people who use reusable grocery bags more so than to people who use plastic bags (Brough et al. 2016). Brough et al. (2016) found that bag type was not related to masculine traits. However, this lack of effect may have been a result of the types of PEBs they examined. It is possible that people who engage in masculine PEBs will be perceived as masculine. Yet, given the feminization of environmentalism, feminine traits may be ascribed to those who engage in any type of PEBs more than masculine traits, or feminine and masculine traits may both be ascribed to those who engage in masculine PEBs. The latter possibility could explain why women and men are equally likely to engage in masculine PEBs and public-sphere PEBs (Dahl et al. 2013; Hunter et al. 2004). Further, traits ascribed to those who express alarm about climate change are composed of both feminine and masculine traits, albeit the feminine traits are negative (e.g., whiney) and the masculine traits are positive (e.g., courageous; Swim and Geiger 2018). The latter finding indicates that it is important to assess whether gendered PEBs are associated with positive and negative gendered traits.

## Judgment of Sexual Identity

Research on ascriptions of sexual identity to people suggests that engaging in gendered PEBs may be used as a marker of sexual identity. Because of the hidden nature of sexual identity, people use clues to determine another's sexual identity. The violation of traditional role norms represents an early theory of detecting sexual identity (Kite and Deaux 1987; Rule and Alaei 2016). Indeed, the ability to accurately detect whether a person is lesbian or gay is related to attending to the display of gender inversions (Rule and Alaei 2016). *Gender inversions* are displays of physical attributes associated with people of a different gender, such as men displaying attributes associated with women (e.g., swaying one's hips) and women displaying attributes associated with men (e.g., swaggering shoulders). Attributes that aid accurate identification of sexual identity (e.g., adornments, actions, acoustics, and appearance) are subtle. Because of this subtlety, perceivers may use more obvious gender inversions, such as occupying nontraditional gender roles, as cues to another's sexual identity, even when the cues do not adequately identify a person as lesbian or gay (cf. Kite and Deaux 1987).

Because of the use of gender inversion cues, gendered PEBs may be used as cues to sexual identities. For example, people may judge a man who engages in feminine PEBs not only as feminine, but also as gay, as well as do so more than they would a man who engages in masculine PEBs. Consistent with this conclusion, Swim et al. (2018) found that men expected that a man who used feminine arguments for climate change policy (e.g., climate change policies are needed in order to care for those vulnerable to climate change) was not only more likely to be more feminine than a man who used more masculine arguments (e.g., climate change policies would demonstrate world leadership) but also more likely to be gay. Gender and sexual identity judgments apply to women as well. A woman who engages in masculine PEBs may be judged as more masculine than a woman who engages in feminine PEBs, as well as more likely to be lesbian. Yet, past research suggests that the judgments of gender and sexual identity intersect differently for men and women. Swim et al. (2018) found that a woman who used feminine arguments for climate change policy was expected to be more feminine and less masculine than a woman who used masculine arguments but expectations about being a lesbian were not influenced by argument type. This may be because women's gender-roles have expanded more than men's, giving women greater latitude in their ability to violate gender-role norms (Diekmann and Eagly 2000).

### Stigma-by-Association

If PEBs signal a person as a GSM, inherent social stigma may invoke undesirable social consequences. A stigmatized person has an attribute that results in widespread social disapproval, something that Goffman (1963) called a spoiled identity (Bos et al. 2013). Being lesbian or gay is often considered a hidden stigma because of the absence of clear physical markers of sexual identity, especially relative to physical markers for other groups such as gender, race, and age (Rule and Alaei 2016). Further, there are many strategies that gay and lesbian individuals use to conceal their sexual identity (Malterud and Bjorkman 2016). This stigmatization suggests that negative social consequences can be anticipated from judgments as a GSM based on engagement in gender-bending PEBs.

These social consequences may extend to same gendered friends of a person who gender bends with PEBs. *Stigma-by-association*, also called a courtesy stigma, is the tendency for people who associate with a stigmatized person to have the same stigma attributed to them (Filip-Crawford and Neuberg 2016; Goffman 1963; Pryor et al. 2012). Stigma-by-association has been documented for many different types of stigma (Pryor et al. 2012). This includes men being treated more negatively when they are associated with gay men than when associated with heterosexual men (Neuberg et al. 1994). This acquired stigma occurs when a person has a meaningful

relationship with the stigmatized individual as well as when one is coincidentally associated with the stigmatized person (Pryor et al. 2012).

One way that stigma-by-association for gender and sexual identities can manifest is believing that not only is a person who gender bends on PEBs is a GSM but also friends of the gender-bending person are GSMs. This extension of stigma to friends could result from assumptions that people who spend time with each other may be similar to each other, including sharing similar interests (Pryor et al. 2012). For example, a man whose friend is interested in feminine PEBs may be assumed to also be interested in the same PEBs. Thus, for the same reasons that a man who does feminine PEBs may be assumed gay, that man's friend may also be assumed to be gay because the friends' shared interests in feminine PEBs would be a cue to the friend's sexual identity. A different explanation comes from the theory that lay individuals view sexual identity as a pathogen (Filip-Crawford and Neuberg 2016). According to this theory, sexual identity, like pathogens, are assumed to be able to spread to others. For example, prejudiced individuals report that spending time with a person who is a sexual minority causes a person to identify as gay or lesbian and to engage in same-sex sexual behavior (Filip-Crawford, 2015, as reported in Filip-Crawford and Neuberg 2016). Thus, some may assume the sexual identity of a person may be influenced by whether that person is friends or associates with someone who engages in gender-bending PEBs.

### Social Distancing

Social penalties for gender bending on PEBs and social rewards for gender conformity on PEBs, as predicted by social role theory (Diekmann and Eagly 2000), can be revealed by socially distancing from gender benders and social attraction to gender conformers. Dislike of gender benders is suggested by backlash against those who do not conform to gender roles (Rudman and Fairchild 2004). Social distancing is a way that prejudice against gender benders may be displayed. *Social distancing* is a common and subtle form of discrimination that stigmatized groups, perhaps especially GSMs, face (Filip-Crawford and Neuberg 2016). Social distancing can take the form of physical avoidance. According to the pathogen model of lay beliefs about sexual identity, people avoid contact with GSMs in order to prevent the spread (i.e., contamination) of supportive gay ideologies and sexual identity (Filip-Crawford and Neuberg 2016).

Social distancing can emerge in the form of how one communicates preferences, identity, and beliefs. For example, women who were prejudiced against lesbians indicated unpopular preference (e.g., preferring essays over multiple choice exams) when a popular preference (e.g., preferring multiple choice over essay exams) aligned them with a lesbian woman more so than when it aligned them with a heterosexual

woman (Swim et al. 1999). In this same study, both low and high prejudiced women socially distanced on other outcomes: Neither high nor low prejudiced women identified as a feminist and both endorsed sexist beliefs when feminist identity and nonsexist beliefs aligned them with a lesbian women more so than when such identification and beliefs aligned them with a heterosexual woman (Swim et al. 1999). Social distancing by low and high prejudiced women on these outcomes could be because there is a strong perceived association between being a lesbian and being a feminist (Rudman and Fairchild 2007), and both groups of women may have been attempting to illustrate that they were not lesbians. Taken together, these results suggest that social distancing can result both from prejudice and concerns about misclassification, possibly via stigma-by-association, but the motive might depend upon the extent to which a behavior is suggestive of one's sexual identity. Pitting the two explanations against each other, Buck et al. (2013) demonstrated that reported concerns about misclassification in a work setting and living arrangements, rather than endorsement of prejudice against gays and lesbians, better explained reported likelihood of social distancing from gays and lesbians.

Extending this research to PEBs, avoiding physical interaction with another person based upon that other person's preferences for masculine or feminine PEBs can be considered a form of social distancing and discrimination against women and men who gender bend on PEBs. This may reflect backlash against gender benders (Rudman and Fairchild 2004). Further, if gender bending on PEBs increases the likelihood that a person is judged as a GSM, then research on stigma-by-association suggests that men and women would be less interested in interacting with a person who shows interest in gender-bending PEBs than a person who shows interest in gender-conforming PEBs.

## The Present Research

We tested social consequences for engaging in gendered PEBs across three studies and a single paper meta-analysis combining results from our first two studies. Our first two studies assessed perceptions of women and men engaging in gendered PEBs, and our third study tested social distancing and attraction to women and men with interests in gendered PEBs. All three studies conducted here were reviewed and approved by the Pennsylvania State University institutional review board prior to data collection. These studies tested four hypotheses about the social consequences of gender conformity versus gender bending when engaging in PEBs. (a) Gendered impressions of people will align with the gendered nature of their PEBs such that feminine traits will be ascribed to those who engaged in feminine PEBs and masculine traits will be ascribed to those who engaged in masculine PEBs

(Hypothesis 1; Studies 1 and 2). (b) Gender conformity on PEBs will lead to judgments that the target is heterosexual, and gender bending on PEBs will lead to judgments that a male target is gay and a female target is lesbian (Hypothesis 2: Studies 1 and 2). (c) Judgments of sexual identity will be extended from a person engaging in PEBs to a friend of the actor such that effects of an actor's gender bending versus gender conformity will apply to the actor and an actor's friend (Hypothesis 3; Study 2). (d) Men and women will socially distance from gender benders on PEBs and be socially attracted to gender conformists on PEBs (Hypothesis 4; Study 3).

## Study 1

Participants in Study 1 read about a person's everyday activities that involved either feminine, gender-neutral, or masculine PEBs as described by a friend of the person doing the PEB. Testing Hypotheses 1 and 2, participants judged the femininity and masculinity, as well as the sexual identity, respectively, of a person engaged in gendered PEBs. Additionally, we explored whether gender traits ascribed to people engaging in PEBs depended upon a trait's valence (positive or negative). The valence of gendered traits attributed to people concerned about the environment can provide important information about subsequent social consequences and behavior. For example, negative masculine traits can inspire reaction against a group whereas positive masculine traits can encourage people to follow the group's example (Geiger and Swim, 2018). It may follow suit that negative traits are ascribed more to people engaged in gender-bending PEBs and positive traits are ascribed more to people engaged in gender-conforming PEBs (Hypothesis 5).

Study 1 also asked participants to either indicate their own perceptions of the person doing the PEBs or the impressions that others would have of that person. We reasoned that people may not be willing to report that they held stereotypic views of the target but others might. The difference may be important to assess because people may personally not endorse stereotypic views, but their beliefs about other people's perceptions can potentially influence their actions (Hypothesis 6).

## Method

### Design

Study 1 consisted of a 3 (Gendered PEBs: Feminine, Neutral, Masculine)  $\times$  2 (Target Gender: Male vs. Female)  $\times$  2 (Perspective: Own vs. Other's perspective) between-participant design. Participants completed four types of trait ratings (Negative feminine, Negative masculine, Positive feminine, and Positive masculine traits), which were analyzed as

within-subjects factors, and they provided judgments about the target's sexual identity. Using this design, power analyses with alpha equal to .05, power = .80, and a medium effect size of .25 indicated that we needed 180 participants for analysis with trait ratings and 179 participants to test main effects and interactions for sexual identity.

### Participants

Participants ( $n = 170$ ) were paid \$1.00 each for their participation via MTurk. The final sample size was 163 after removing people who took little or too long to complete the survey. Although we included attentional and instructional checks intending to exclude inattentive participants, we instead relied on time to complete the survey as an exclusion criterion because attentional check items may be biased to exclude people with less education (Vannette 2017). Our cutoff for taking too long was determined by an examination of the time it took to take the survey, with participants taking between 25 s and 28 h to complete the survey. Whereas increases in time to take the survey were typically between a few seconds and 4 min, there was 30-min gap between one participant who took 23.58 min and a second participant who took 53.70 min. After excluding four participants who took more than 24 min to complete the survey, we excluded three participants who took less than one-third the median time ( $5.91/3 = 1.97$  min) to complete the survey.

The final sample consisted of 56% (92) women, 42% (69) men, and 1% (2) that did not identify their gender. On average participants were 21-years-old ( $SD = 6.67$ ,  $mdn = 20$ , range = 19–70). Most participants were White/Caucasian (76%, 122), with the remainder identifying as Black/African American (6.8%, 11), Hispanic/Latino/a (4.3%, 7), Asian (9.8%, 16), or Mixed race (3.1%, 5). Most participants identified as Democrats (32%, 52), followed by no affiliation with a party or had no interest in politics (27%, 44), then Independent (22%, 35), and then Republican (17%, 27). The remainder provided an alternative party (1.8%, 3). Participants were moderate in their political identification, leaning toward being liberal ( $M = 2.91$ ,  $SD = 1.45$ , on a 1 “very liberal” to 5 “very conservative” scale). Participants were asked to use a sliding scale ranging from gay/lesbian (0) to heterosexual (100). Most participants responded toward the heterosexual end of the scale (i.e., 72%, 117 provided a response of 100 and 21%, 21, indicating between 90 and 99; two did not indicate their sexual identity).

### Procedure and Measures

Participants were randomly assigned to read one of six, equal-length descriptions of “a day in the life of” either a man or woman engaging in pro-environmental behaviors as told by the actor's friend whose gender was not specified. After

reading the descriptions, participants provided either their impressions of the actor or the impressions they thought others might have of the actor. Following these ratings, participants completed an attention check for the name of the person about whom they read. They were provided the name of the target person in their condition of the study and three distractor names—one of the same gender and two of a different gender. Fully 90% identified the correct gender of the person in their condition and 85% correctly identified the name. They were as likely to be correct about the gender,  $\chi^2(1) = .001$ ,  $p = .97$ , and name,  $\chi^2(1) = .31$ ,  $p = .58$ , when they read about a woman as they were if they read about a man. Participants also completed an instructional check item. Last, participants provided demographic information.

**Descriptions of Behaviors and Targets** Participants read about “a day in the life of” either David or Diane as described by a friend, whose gender was not specified. The description included five feminine PEBs (line drying washed clothes, decorate a room with light colors that reflect daylight, recycling, buy new clothes from a sustainable designer brand, and use reusable shopping bags), five neutral (buying energy efficient CFL and LED bulbs; unplug your chargers, which draw current when the devices battery is full; opening windows rather than using air-conditioning; use safety razors instead of disposable ones; and paying bills online), or five masculine PEBs (donating to a waterfowl sportsman's group, adhere to a vehicle maintenance plan, keep car tires at the proper pressure, caulking windows and doors, and using online video games rather than purchasing video game disks; see the online supplement for the descriptions given to participants).

Behaviors were selected through a pretesting process. Using a 1 to 5 scale, 45 participants rated 72 behaviors as to whether they expected women to do them more than men (1), women and men to be equally likely to do them (3), or men to do them more than women (5). Behaviors significantly less than the midpoint of the scale were labeled feminine behaviors,  $t(45) = 15.13$ ,  $p < .001$ ; those that did not differ from the midpoint were labeled neutral,  $t(45) = .47$ ,  $p = .64$ ; and those significantly greater than the midpoint were labeled masculine,  $t(45) = -12.98$ ,  $p < .001$ . Behaviors were selected such that the average rating across the feminine behaviors ( $M = 2.14$ ,  $SD = .45$ ) was a similar distance from the average rating of the neutral behaviors ( $M = 3.03$ ,  $SD = .50$ ),  $t(45) = 9.90$ ,  $p < .0014$ , as the distance from the average of the masculine behaviors ( $M = 4.06$ ,  $SD = .45$ ),  $t(45) = 9.19$ ,  $p < .001$ , was from the neutral behaviors.

**Trait Impressions** Participants rated the target person on 12 traits using a 0 (*not at all*) to 100 (*completely*) sliding scale, with three traits representing each of four trait groups. Traits were averaged to form four scales that represented positive feminine traits (i.e., nurturing, gentle, sympathetic of others,

$\alpha$ s = .72 and .83 for own and other perspective, respectively), negative feminine traits (i.e., nagging, whiny, complaining,  $\alpha$ s = .85 and .87), positive masculine traits (i.e., courageous, adventurous, stands-up-under pressure,  $\alpha$ s = .58 and .70), and negative masculine traits (i.e., aggressive, dictatorial, arrogant,  $\alpha$ s = .78 and .63). (See Swim and Geiger's 2018, supplemental materials for pretest ratings confirming the subscales.) The low reliabilities could be improved by removing items but to be consistent across whether they were providing their own ratings or what they indicate they think others would provide as well as to be consistent with previous research, we did not remove trait ratings from measures. Participants also rated the target person on the following traits associated with activists, which were included for exploratory purposes: eccentric, self-righteous, over-reactive ( $\alpha$ s = .63 and .76). These ratings were strongly correlated with negative feminine,  $r(159) = .66$ ,  $p < .001$ , and negative masculine traits,  $r(160) = .66$ ,  $p < .001$ , so they were not included in the present study.

**Judged Sexual Identity** After indicating the target person's likely race/ethnicity and political party membership (which were used as filler items), participants gave their impression of the target's sexual identity using a continuous slider scale from  $-5$  (*gay/lesbian*) to  $0$  (*bisexual*) to  $5$  (*heterosexual*).

## Results

We did not predict nor find that participants' sexual identity or gender interacted with any of the independent variables included in our analyses (see the online supplement). Thus, we do not include participants' sexual identity or gender in the analyses presented here. Means and standard errors for all dependent measures by Target Gender and Gendered PEBs can be found in the online supplement. All nonsignificant effects noted in the following are at  $p \geq .050$ .

### Trait Ratings

Impressions on the gendered traits were analyzed with a 3 (Gendered PEBs: Feminine, Neutral, Masculine)  $\times$  2 (Target Gender: Female vs. Male)  $\times$  2 (Perspective: Own vs. Other)  $\times$  2 (Trait Gender: Feminine vs. Masculine)  $\times$  2 (Trait Valence: Positive vs. Negative) mixed ANOVA, with the first three variables being between-participants and the last two within-participants. Cell sizes ranged from 9 to 18. There were no main effects or interactions with perspective, suggesting that people expected others to have the same impression that they had.

An interaction between Gendered PEBs and Trait Gender would support our hypothesis that those engaging in feminine PEBs would be perceived as feminine whereas those engaging in masculine PEBs would be perceived as masculine (Hypothesis 1). The interaction between Gendered PEBs and Trait Gender

was not significant,  $F(2, 148) = .23$ ,  $p = .80$ ,  $\eta_p^2 = .003$ . However, there was a significant three-way interaction among Trait Valence, Gendered PEBs, and Trait Gender,  $F(2, 148) = 4.77$ ,  $p = .01$ ,  $\eta_p^2 = .06$ , that qualified an interaction between Trait Valence and Gendered PEBs,  $F(2, 148) = 4.03$ ,  $p = .02$ ,  $\eta_p^2 = .052$ —a pattern of results that did not support Hypothesis 1 for masculine PEBs (see Table 1). Consistent with hypotheses, participants ascribed more negative and positive feminine than negative and positive masculine traits, respectively, to the target engaging in feminine PEBs. Also, participants were equally likely to ascribe negative feminine and negative masculine traits to the target engaging in neutral PEBs. However, inconsistent with predictions, there were no differences between ratings on negative feminine versus negative masculine traits when the target engaged in masculine PEBs, and opposite to predictions, they ascribed more positive feminine than positive masculine traits when the target engaged in neutral and masculine PEBs. Also not supporting predictions, comparing across gendered PEBs, negative feminine, negative masculine, and positive masculine trait ratings did not differ from each other when rating when participants rated the person engaging in feminine or masculine PEBs. Plus, opposite to predictions, participants were less likely to ascribe positive feminine traits to the target engaging in feminine PEBs than the target engaging in masculine PEBs.

There was also a main effect of Trait valence,  $F(1, 148) = 97.48$ ,  $p < .001$ ,  $\eta_p^2 = .40$ , and an interaction between Trait valence and Trait Gender,  $F(1, 148) = 27.25$ ,  $p < .001$ ,  $\eta_p^2 = .16$ . For both feminine and masculine traits, participants provided more positive than negative ratings,  $ps < .001$ , but within positive traits, participants provided more positive feminine ( $M = 50.05$ ,  $SE = 1.93$ ) than positive masculine trait ratings ( $M = 38.18$ ,  $SE = 1.71$ ;  $p < .001$ ). There were no differences in negative feminine ( $M = 23.96$ ,  $SE = 1.84$ ) and negative masculine ( $M = 22.68$ ,  $SE = 1.67$ ) trait ratings ( $p = .25$ ).

**Table 1** Effect of gendered PEBs on trait ratings, Study 1

Pro-Environmental Behaviors (PEBs) within valence of traits	Trait Ratings	
	Feminine <i>M</i> ( <i>SE</i> )	Masculine <i>M</i> ( <i>SE</i> )
(a) Negative Trait Valence		
Feminine PEBs	29.09 <sub>A a</sub> (3.19)	23.55 <sub>B a</sub> (2.86)
Neutral PEBs	21.49 <sub>A a</sub> (3.17)	22.73 <sub>A a</sub> (2.84)
Masculine PEBs	21.29 <sub>A a</sub> (3.19)	21.75 <sub>A a</sub> (2.86)
(b) Positive Trait Valence		
Feminine PEBs	43.19 <sub>A a</sub> (3.35)	35.46 <sub>B a</sub> (2.96)
Neutral PEBs	51.90 <sub>A ab</sub> (3.33)	35.94 <sub>B a</sub> (2.95)
Masculine PEBs	55.04 <sub>A b</sub> (3.35)	43.14 <sub>B a</sub> (2.96)

Means with different uppercase subscripts differ within a row,  $p < .005$ . Means with different lowercase subscripts within a column indicate that they are significantly different from each other,  $p < .05$

## Judged Sexual Identity

Judged sexual identity was analyzed with a 3 (Gendered PEBs: Feminine, Neutral, Masculine)  $\times$  2 (Perspective: Own vs. Other's perspective) between participant ANOVA. Cell sizes ranged from 8 to 18. There were again no main effects or interactions with perspective suggesting that people expected others to have the same assumptions that they had. We predicted that gender-conforming targets (a woman engaging in feminine PEBs and a man engaging in masculine PEBs) would be more likely to be perceived as heterosexual than their gender-bending counterparts, with the latter perceived as lesbian/gay (Hypothesis 2). Consistent with this prediction, judged sexual identity was a function of both Target Gender and Gendered PEBs,  $F(2, 147) = 3.22, p = .04, \eta_p^2 = .042$ . Comparing within behaviors, the female target was more likely to be described as heterosexual ( $M = 2.33, SE = .52, 95\% CI [1.30, 3.53]$ ) than the male target ( $M = .67, SE = .56, 95\% CI [1.57, 2.23]$ ) when they engaged in feminine behaviors ( $p = .02$ ). As such, gender-conforming women were more likely to be judged as heterosexual than their gender-bending male counterparts. However, Target Gender did not affect judged sexual identity for masculine behaviors ( $M = 1.03, SE = .48, 95\% CI [.07, 1.93]$  vs.  $M = 1.78, SE = .46, 95\% CI [.87, 2.70]$ , for female and male targets respectively;  $p = .26$ ) or gender-neutral behaviors ( $M = 1.50, SE = .46, 95\% CI [.60, 2.40]$  vs.  $M = 1.36, SE = .48, 95\% CI [.41, 2.32]$ ;  $p = .84$ ). As such, there was no difference in judged sexual identity between gender-bending women and gender-conforming men. Notably, none of the means for judged sexual identity were less than zero indicating that, counter to predictions and on average, participants did not perceive the target as lesbian or gay in any of the conditions.

## Discussion

Supporting Hypothesis 2, participants were more likely to judge a gender-conforming woman as heterosexual (a woman who engaged feminine PEBs) than a gender-bending man (a man who engaged in feminine PEBs). This effect was not qualified by whether participants were reporting their own perceptions or what they thought other people would think, suggesting that they would expect others to make the same assumptions about people engaging in gendered PEBs. However, they did not, on average, perceive that this gender-bending man was gay. Rather, the mean ratings in all study conditions were above the midpoint of the scale, suggesting that, when a man was gender bending, participants were uncertain of his heterosexual identity. We did not find that a gender-bending woman (a woman who engaged in masculine PEBs) was seen as less heterosexual than a gender-conforming man (a man who engaged in masculine PEBs). However, this could be because our study was underpowered.

Effects of condition on trait ratings partially supported predictions. The target engaging in feminine PEBs was ascribed more negative and positive feminine traits than negative and positive masculine traits and was equally likely to have negative feminine and negative masculine traits when engaging in neutral PEBs. However, targets engaging in masculine PEBs were also equally likely to be ascribed negative feminine and masculine traits. Additionally, for each of the three types of PEBs, targets were perceived as being more likely to have positive feminine than positive masculine traits. These latter comparisons suggest that a predominant view was that a person who engaged in PEBs was feminine. However, as with judgments about sexual identity, a study with more power may be able to detect more nuanced differences in gendered traits ascribed to the actor.

## Study 2

The purpose of Study 2 was to retest Hypotheses 1 and 2 with a larger sample. Study 2 also tested whether participants' impressions of a person engaging in PEBs generalized to a same gender friend (Hypothesis 3).

## Method

### Design

Study 2 consisted of a 3 (Gendered PEBs: Feminine, Neutral, Masculine)  $\times$  2 (Target Gender: Female vs. Male)  $\times$  2 (Target: Actor vs. Friend of actor) between-subjects design. Participants completed four types of trait ratings (Negative feminine, Negative masculine, Positive feminine, and Positive masculine traits), which were analyzed as within-subjects factors, and they indicated their judgments about the target's sexual identity. Power analyses with this design, with alpha equal to .05, power = .80, and effect sizes from Study 1, indicated that we would need 72 participants to replicate the Trait valence, Gendered PEBs, and Trait gender interaction and 241 participants to replicate the Gendered PEBs by Target gender interaction on judged sexual identity. We recruited more participants than these power analyses indicated in order to be able to detect more nuanced differences in trait ratings than what we found in Study 1 and to be able to detect interactions with the target rated (Actor vs. Friend).

### Participants

Participants ( $n = 523$ ) were paid \$1.00 each for their participation via MTurk. The final sample size was 494 based upon the same exclusion criteria used in Study 1. In this sample, participants took between 52 s and 18 h to complete the study. After small increments in change in time to complete the



study, there was a 7-min gap between a participant who took 16.35 min and 23.72 min and an 8-min gap from this participant to another participant who took 31.60 min to complete. To be similar to Study 1, we used the latter to guide our cutoff of 24 min, which resulted in removing seven participants. One-third the median completion time was  $(4.61/3 = 1.54)$ , which was faster than Study 1. To remain consistent across studies, we used the cut-off from Study 1. However, results are the same with both cutoffs.

The final sample consisted of 47% (231) women, 52% (258) men, and 1% (5) who did not specify their gender. On average participants were 37-years-old ( $SD = 11.86$ ,  $mdn = 34$ , range = 18–84). Most participants were White/Caucasian (78%, 383), with the remainder identifying as Black/African American (5.3%, 26). Hispanic or Latino/a (6.3%, 31), Asian (7.5%, 37), Native American (.2%, 2), Mixed race (1.8%, 9) or Other (.2%, 1). Most participants identified as Democrats (41%, 203), followed by Independent (39%, 145) and then Republican (23%, 116). The remainder indicated they were not affiliated with a political party or had no interest in politics (3.2%, 16) or provided an alternative party (1.8%, 9). Participants were moderate in their political identification, leaning toward being liberal ( $M = 2.71$ ,  $SD = 1.04$ , on a 1 “very liberal” to 5 “very conservative” scale). Participants were asked to use a sliding scale, ranging from  $-5$  (*gay/lesbian*) to 5 (*heterosexual*) with 0 (*bisexual*), to indicate their sexual identity. Most participants responded toward the heterosexual end of the scale (i.e., 79%, 389, provided a response of 5 and 7.3%, 36, provided a response of 4; five did not indicate their sexual identity).

### Procedure and Descriptions of Behaviors and Targets

Participants were randomly assigned to read the same stimuli as in Study 1, with the exception that a name was provided for the actor’s friend who told the story and that name indicated the friend was of the same gender as the actor. After reading the descriptions, participants provided their impressions of the actor or impressions of the actor’s friend. Last participants provided demographic information as we noted.

Prior to providing demographic information, participants were given an attention check for the name of the actor’s friend. They were provided the four names of the actor and actor’s friends used in the study. In the condition where participants rated the actor, 96% (239) provided the correct gender of the actor’s friend and 78% (193) provided the correct name. Similarly, in the condition where participants rated the actor’s friend, 96% (237) provided the correct gender of the person in their condition and 79% (193) provided the correct name. They were as likely to select a name with the correct gender and correct name when they read about a woman as when they read about a man, both among those who provided ratings of the actor,  $\chi^2(1) = .80$ ,  $p = .50$  and  $\chi^2(1) = .64$ ,

$p = .42$ , for gender and name respectively, and among those who provided ratings of the actor’s friend,  $\chi^2(1) = 1.04$ ,  $p = .31$  and  $\chi^2(1) = 1.18$ ,  $p = .28$ , respectively. These results suggest that nearly all participants noticed the gender of the target and a strong majority differentiated between the actor and the actor’s friend. Participants also completed an instructional check item. Because of criticism of use of attentional and instructional check items that this might selectively remove certain groups of people such as those with low education levels (Vannette 2017), as noted in Study 1, we instead relied on time to complete the survey as a way to filter people who may not have provided adequate attention to the materials.

### Measures

To assess impressions of the actor, participants were asked the following question: “What is your impression of the person who was described (not the person doing the describing)? That is, how likely do you think the described person would have the traits noted below?” To assess impressions of the friend, participants were asked the following question: “What is your impression of the person who was doing the describing (not the person who was described)? That is, how likely do you think the person who is describing the friend would have the traits noted below?”

The trait measures used in Study 1 were also used in Study 2 and adequate reliability was found for all trait measures: Positive feminine traits ( $\alpha_s = .83$  and  $.84$  for actor and friend, respectively), negative feminine traits ( $\alpha_s = .90$  and  $.91$ ), positive masculine traits ( $\alpha_s = .78$  and  $.82$ ), and negative masculine traits ( $\alpha_s = .79$  and  $.82$ ). Again, for exploratory purposes, they also rated the target person on the following three traits associated with activists: eccentric, self-righteous, over-reactive ( $\alpha_s = .82$  and  $.81$ ). As in Study 1, these ratings were strongly correlated with negative feminine,  $r(493) = .81$ ,  $p < .001$ , and negative masculine traits,  $r(493) = .79$ ,  $p < .001$ , so they were not included in the present study.

After describing the traits, participants were asked to indicate the demographic group membership of the person they rated. As in Study 1, after indicating the target person’s likely race/ethnicity and political party membership as filler items, participants gave their judgment of the target’s sexual identity using a continuous slider scale from  $-5$  (*gay/lesbian*) to 0 (*bisexual*) to 5 (*heterosexual*).

### Results

We did not predict nor find in preliminary analyses that participants’ sexual identity or gender interacted with any of the independent variables testing our hypotheses (see the online supplement). Thus, we do not include participants’ sexual identity or gender in the analyses presented in the following.

Means and standard errors for all dependent measures by Target Gender and Gendered PEBs can be found in the online supplement. All nonsignificant effects noted below are at  $p \geq .050$ .

### Trait Ratings

Impressions on the gendered traits and anticipated sexual identity of the target were analyzed with a 3 (Gendered PEBs: Feminine, Neutral, Masculine)  $\times$  2 (Target Gender: Female vs. Male)  $\times$  2 (Target rated: Actor vs. Friend of actor)  $\times$  2 (Trait Gender: Feminine vs. Masculine)  $\times$  2 (Trait Valence: Positive vs. Negative) mixed ANOVA, with the first three variables being between-participants and the last two within-participants. Cell sizes ranged from 35 to 45. We had predicted that those who engaged in feminine PEBs would be seen as more feminine and less masculine than those who engaged in masculine PEBs (Hypothesis 1). There was a main effect for Trait Gender,  $F(1, 482) = 100.00, p < .001, \eta_p^2 = .17$ , and pertinent to this hypothesis, an interaction between Gendered PEBs and Trait Gender,  $F(2, 465) = 3.98, p = .019, \eta_p^2 = .016$ . Within all PEB conditions, participants rated the targets as being more likely to have feminine than masculine traits ( $ps < .001$ ); comparisons between feminine and masculine traits within Gendered PEBs indicated only one significant effect (see Table 2). Participants ascribed more masculine traits to the target engaging in masculine PEBs than the target engaging in feminine PEBs ( $p = .047$ ). There was no difference on masculine trait ratings when comparing these two conditions with those engaging in neutral PEBs and no difference among the Gendered PEBs on feminine trait ratings.

Unlike Study 1, the three-way interaction among Trait Valence, Gendered PEBs, and Trait Gender was not significant,  $F(2, 465) = .75, p = .473, \eta_p^2 = .003$ . Effects of Trait Valence were limited to a main effect,  $F(1, 482) = 363.67, p < .001, \eta_p^2 = .43$ , and an interaction between Trait Valence and Trait Gender,  $F(1, 482) = 153.78, p < .001, \eta_p^2 = .24$ . Like Study 1, for both types of traits, participants provided more positive than negative ratings ( $ps < .001$ ), but within positive traits, participants provided more positive feminine ( $M =$

52.61,  $SE = .99$ ) than positive masculine trait ratings ( $M = 41.36, SE = .97; p < .001$ ), and there were no differences in negative feminine ( $M = 23.04, SE = 1.04$ ) and masculine ( $M = 23.67, SE = .95$ ) trait ratings ( $p = .29$ ).

Lack of interactions between Target (actor vs actor's friend) and Gendered PEBs supported the proposition that effects of Gendered PEBs on perceptions of an actor would extend to the actor's friend (Hypothesis 3). There was a main effect for Target rated condition,  $F(1, 482) = 58.23, p < .001, \eta_p^2 = .11$ , and an interaction between Gendered PEBs and Target rated  $F(1, 482) = 3.28, p = .038, \eta_p^2 = .016$ . Regardless of whether the traits rated were feminine or masculine, participants provided stronger ratings of the actor than the actor's friend in all conditions ( $ps < .001$ ). The interaction indicated that when rating the actor's friend, participants rated them less strongly on the average of feminine and masculine trait ratings when the friend engaged in feminine PEBs than neutral ( $p = .014$ ) and masculine PEBs ( $p = .013$ ), and the latter two did not differ from each other ( $p = .98; M_{\text{fem}} = 26.01, SE = 1.70; M_{\text{neut}} = 31.89, SE = 1.68; M_{\text{masc}} = 31.95, SE = 1.66$ ). The average trait ratings of the actor did not differ by Gendered PEBs for ratings of actors comparing the feminine PEBs ( $M = 41.36, SE = 1.63$ ) versus the neutral PEBs ( $M = 40.42, SE = 1.63$ ),  $p = .68$  and masculine PEBs ( $M = 39.40, SE = 1.77; p = .41$ ) and comparing the neutral PEBs with the masculine PEBs ( $p = .67$ ).

### Judged Sexual Identity

Judged sexual identity was analyzed with a 3 (Gendered PEBs: Feminine, Neutral, Masculine)  $\times$  2 (Target Gender: Female vs. Male)  $\times$  2 (Target: Actor vs. Friend of actor) between-participants ANOVA. Cell sizes ranged from 35–45. The predicted interaction between Gendered PEBs and Target Gender was significant,  $F(2, 480) = 5.04, p = .01, \eta_p^2 = .021$ . Supporting the hypothesis that gender conformers would be judged as more heterosexual than gender benders (Hypothesis 2), the female target ( $M = 2.65, SE = .24, 95\% \text{ CI } [2.18, 3.12]$ ) was rated as being more likely to be described as heterosexual than was the male target ( $M = 1.86, SE = .24, 95\% \text{ CI } [1.48, 2.34]$ ) when engaging in feminine behaviors ( $p = .02$ ) and the male target was more likely to be described as heterosexual ( $M = 2.54, SE = .34, 95\% \text{ CI } [2.05, 3.06]$ ) than the female target ( $M = 1.84, SE = .34, 95\% \text{ CI } [1.36, 2.32]$ ) when engaging in masculine behaviors ( $p = .04$ ). There was no difference in ratings of the female target ( $M = 2.42, SE = .34, 95\% \text{ CI } [1.94, 2.90]$ ) and male target ( $M = 1.98, SE = .34, 95\% \text{ CI } [1.50, 2.45]$ ) when they engaged in gender-neutral behaviors ( $p = .20$ ).

Furthermore, comparing within Target Gender, the female target was more likely to be judged as heterosexual when she engaged feminine PEBs compared to masculine PEBs ( $p = .018$ ), and the male target was more likely to be judged

**Table 2** Effect of gendered PEBs on trait ratings, Study 2

Pro-Environmental Behavior (PEBs)	Trait Ratings	
	Feminine <i>M</i> ( <i>SE</i> )	Masculine <i>M</i> ( <i>SE</i> )
Feminine	37.23 <sub>A a</sub> (1.18)	30.15 <sub>B a</sub> (1.34)
Neutral	38.89 <sub>A a</sub> (1.17)	33.42 <sub>B ab</sub> (1.33)
Masculine	37.37 <sub>A a</sub> (1.22)	33.98 <sub>B b</sub> (1.38)

Means with different uppercase subscripts differ within a row,  $p < .005$ . Means with different lowercase subscripts within a column indicate that they are significantly different from each other,  $p < .05$

as heterosexual when he engaged in masculine PEBs compared to feminine PEBs ( $p = .049$ ). The female target was as likely to be perceived as heterosexual when doing the neutral PEBs as when doing feminine PEBs ( $p = .50$ ) and masculine PEBs ( $p = .093$ ), and the male actor was as likely to be perceived as heterosexual when doing the neutral PEBs as when doing feminine PEBs ( $p = .73$ ) and masculine PEBs ( $p = .10$ ). Like Study 1, an examination of the confidence intervals around the means reveals that none of the means of expected sexual identity were below zero, indicating that, on average, in no conditions did participants judge that the target was gay or lesbian.

Potentially suggesting that participants did not extend their expectations about sexual orientation of actors to friends, the only effect for Target Rated was that the friend ( $M = 2.56$ ,  $SE = .14$ , 95% CI [2.28 to 2.84]) was perceived as more likely heterosexual than the actor ( $M = 1.87$ ,  $SE = .14$ , 95% CI [1.60 to 2.15]),  $F(1, 480) = 11.89$ ,  $p = .001$ ,  $\eta_p^2 = .024$ . However, the lack of interaction among Gendered PEBs, Target Gender, and Target rated (actor vs. friend of actor),  $F(2, 480) = .39$ ,  $p = .68$ ,  $\eta_p^2 = .002$ , suggests stigma-by-association (Hypothesis 3) because it indicates that factors that influenced perceptions of the actor were extended to perceptions of the actor's friend (Hypothesis 4).

## Discussion

As predicted, male and female actors and their friends were rated as being more heterosexual when gender conforming than when gender bending with PEBs. This indicates that participants were using gender-role violations as clues to sexual identity (Hypothesis 2). Notably, gender benders were not rated as gay/lesbian but instead rated as less likely to be heterosexual, suggesting that people were questioning targets' heterosexual identity rather than declaring them to be gay/lesbian.

Participants were more likely to indicate that the actor's friend was heterosexual than the actor and ascribed weaker trait ratings (on both feminine and masculine traits) to the actor's friend than to the actor. Judging an actor's friend as heterosexual more so than a target may indicate that participants were assuming that most people are heterosexual, unless information indicates otherwise. This assumption along with weaker trait ratings for actors' friends than actors could indicate participants were reluctant to make assumptions about an actor's friend based upon knowledge about an actor's behavior. This would suggest that participants were not engaging in stigma-by-association. Yet, the lack of interaction among Target Rated, Target Gender, and Gendered PEBs is consistent with stigma-by-association because the effects of gender bending and gender conformity on judgments about sexual identity extended to the actor's friend (Hypothesis 3). Thus, although participants were not necessarily as confident about

judging an actor's friend from the actor's behaviors, participants' judgments of the actor's friend's sexual identity and traits were none-the-less influenced by the actor's behavior.

Consistent with research on pro-environmental behaviors as being perceived as more feminine than masculine (see also Brough et al. 2016), targets in the present experiment were described as more feminine than masculine. This pattern was consistent across all three types of PEBs, especially the feminine, but also neutral PEBs and masculine PEBs. However, revealing an effect of Gendered PEBs on perceptions, there was also a tendency for the target to be seen as less masculine when engaging in feminine PEBs than when engaging in masculine PEBs. Results did not replicate the finding that was opposite from predictions in Study 1 that indicated that targets were perceived as less feminine when engaging in feminine PEBs.

## Single Paper Meta-Analysis

We conducted a single paper meta-analysis to (a) resolve inconsistencies across Studies 1 and 2, (b) achieve a statistically more powerful test of the hypotheses tested, and (c) provide more precise estimates of effects than single-study effect sizes (McShane and Böckenholt 2017). Effect sizes were calculated for the tests of interest within Studies 1 and 2 and then the effect sizes were pooled across studies to achieve a more stable estimate of the effect. The model used in the program we used to calculate effect sizes is most similar to a random effects model (McShane 2019 Personal communications). Plots for the effect sizes within study and pooled effect sizes can be found in the online supplement.

## Hypothesis 1: Gendered PEBs Influence Gendered Traits

Participants saw the target as being more feminine than masculine, regardless of whether the target engaged in feminine, neutral, or masculine PEBs, yet the results do suggest that gendered PEBs have some influence on trait ascription. Specifically, examining effects of Trait Gender within Gendered PEBs reveals that targets were rated as more feminine than masculine for all PEBs—but the effect was largest for feminine PEBs, in the middle for neutral PEBs, and smallest for masculine (see Table 3). Analyses within traits suggest this effect of gendered PEBs on gendered traits were a result of ratings on masculine traits (see Table 4). Participants were less likely to ascribe masculine traits to a person engaging in feminine PEBs than to a person engaging in masculine PEBs. In contrast, gendered PEBs did not influence feminine trait ratings.

**Table 3** Effect of gendered PEBs on the difference between feminine and masculine trait ratings, meta-analysis

Pro-Environmental Behaviors (PEBs)	Estimated trait ratings		Contrasts between traits		
	Feminine <i>M (SE)</i>	Masculine <i>M (SE)</i>	Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>
Feminine	36.83 (1.28)	29.82 (1.34)	7.01 (1.70)	4.12	<.001
Neutral	38.34 (1.27)	32.50 (1.38)	5.85 (1.70)	3.43	< .001
Masculine	37.21 (1.30)	33.46 (1.40)	3.75 (1.75)	2.14	.016

## Hypothesis 2: Gendered PEBs and Target Gender Influence Judged Sexual Identity

Results showed strong support for our second hypothesis by demonstrating that participants made judgments about women's and men's sexual identity based upon whether the target was engaged in gender-bending versus gender-conforming PEBs. Gender bending for both women and men resulted in participants being less certain of the target's heterosexual identity. Specifically, examining effects of Target Gender within Gendered PEBs reveals that the woman was rated as more heterosexual than the man when engaging in feminine PEBs (see Table 5). In contrast, the man was rated as more heterosexual than the woman when engaging in masculine PEBs. Additionally, examining effects of Gendered PEBs within Target Gender, the woman was rated as more heterosexual when gender conforming than gender bending (i.e., engaged in feminine than masculine behaviors, respectively; see Table 6). With an effect of about the same magnitude, men were rated as more heterosexual when gender conforming than gender bending (i.e., engaged in masculine PEBs than feminine PEBs, respectively).

The results also suggest that participants' judgments about sexual identity did not differentiate as much between the targets engaging in feminine and the neutral PEBs as they did between the targets engaging in masculine and neutral PEBs. First, like ratings when engaging in feminine PEBs, albeit of a smaller magnitude, the woman was rated as more heterosexual than the man when they engaged in neutral PEBs (Table 5). Second, comparing effects within Target Gender (see Table 6), the woman was not rated a more heterosexual when she engaged in feminine than neutral PEBs but was rated as more heterosexual when she engaged in neutral than masculine behaviors, albeit the effect size was smaller than the effect size comparing women's and men's engagement in feminine versus masculine PEBs. Also indicating more similarity between feminine and neutral PEBs than between neutral and masculine PEBs, a man was not rated as less heterosexual when he engaged feminine versus neutral behaviors but was rated as less heterosexual when engaging in neutral than masculine PEBs. These comparisons between PEBs suggest that doing masculine PEBs is perceived to be more diagnostic of sexual identity than engaging in feminine PEBs.

## Study 3

In Study 3, we tested a different type of social consequence for preferences among Gendered PEB: Social distancing from gender benders and social attraction to gender conformists. Participants ostensibly took part in a study on how people talk about environmental topics. They were allowed to indicate their topic preferences and who they would like as their discussion partners after being informed of their potential partners' topic preferences and gender. Social distancing and social attraction were indicated by likelihood of selecting a particular person as a discussion partner, with low likelihood as social distancing and high likelihood as social attraction.

We tested for possible explanations for partner preferences, focusing on predictors related to likely judgments about potential partners' sexual identity based upon findings from Studies 1 and 2. These studies revealed that trait ratings were more positive than negative regardless of whether a target was gender bending or gender conforming. This suggests that partner preferences would not be a result of differential disliking of people based strictly on whether they were gender benders and gender conformists. Also, the tendency to perceive targets as more feminine than masculine regardless of the gender of the PEBs they did, suggests that effects of gender bending vs. gender conformity partner preferences would not be a result of gendered perceptions. Rather, results from Studies 1 and 2 suggest that the effects of gender bending and gender conformity on partner preferences would be more focused on uncertainty of another person's heterosexuality. Thus, we test whether prejudice against gay and lesbian individuals or concerns about misclassification as gay or lesbian, or uncertainty about one's sexual identity, would explain social distancing.

We used three strategies to test these possibilities. First, the extent to which uncertainty would be troubling may depend upon whether a person is prejudiced against gays and lesbians. Thus, we tested whether greater social distancing from gender benders and attraction to gender conformists was stronger for those who indicate more prejudice against gays and lesbians. We used a prejudice measure that asked about discomfort engaging with gays and lesbians. This negative reaction to

**Table 4** Differences between pro-environmental behaviors for feminine and masculine traits, meta-analysis

Gendered traits	Pro-environmental behaviors (PEBs)						Contrasts between PEBs					
	Feminine <i>M (SE)</i>	Neutral <i>M (SE)</i>	Masculine <i>M (SE)</i>	Feminine vs. Masculine Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>	Feminine vs. Neutral Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>	Neutral vs. Masculine Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>
Feminine	36.91 (1.10)	38.10 (1.10)	37.36 (1.31)	-.46 (1.48)	-.31	.378	-1.19 (1.46)	-.82	.207	.74 (1.48)	.50	.309
Masculine	29.80 (1.21)	32.28 (1.21)	33.58 (1.24)	-3.70 (1.63)	-2.28	.011	-2.40 (1.63)	-1.47	.070	-1.31 (1.65)	-.79	.215

gays and lesbians fit the context for the study. Also, participants' generally positive trait ratings for targets in Studies 1 and 2 suggests that blatant measures of prejudice might not predict social distancing in this context.

Second, uncertainty may also be troubling if a person wanted to be clear about their own sexual identity. We attempt to influence concerns about misclassification as gay or lesbian by either threatening or confirming participants' heterosexual identities at the beginning of the study. Previous research indicates that when men's masculinity is threatened by appearing feminine they attempt to restore their image as masculine (e.g., Vandello et al. 2008). Using the same logic, we reasoned that if a heterosexual person's sexual identity was threatened by being identified as gay or lesbian, they would attempt to avoid confirming this by avoiding interacting with a gender bender of the same gender.

Third, we also examined patterns of socially distancing to see if they were more consistent with prejudice or concerns about misclassification. If men and women socially distance from a gender bender regardless the gender bender's gender, it would suggest that discrimination against people for gender bending rather than concerns about misclassification would account for social distancing. However, if men and women socially distance more from a gender-bending partner who shares their gender more so than one who does not share their gender, it would suggest that fear of stigma-by-association or the anticipated discomfort for having one's sexual identity misclassified may drive social distancing (Bosson et al. 2006).

## Method

### Design

Study 3 consisted of a 2 (Participant gender: Female vs. Male) × 2 (Sexual Identity Feedback: attracted to women, control, attracted to men) × 2 (Partner gender: Female vs. Male) × 2 (Partner's PEB preference: Feminine vs. Masculine) mixed design, with the first two factors being between-participants and the last two being within-participants. Power analysis with alpha equal to .05, power = .80, and an effect size of  $d = .50$  indicates that 20 participants would be needed to detect differences with a *t*-test comparing mean most and least preferred partner versus a constant value and 35 participants would be needed to detect differences between two proportions with a Wilcoxon signed Rank test for matched pairs.

### Participants

Fully 303 participants (161 women, 142 men) were recruited from a U.S. university's psychology subject pool. On average participants were 20-years-old ( $SD = 1.17$ ,  $mdn = 20$ , range = 19–26). A majority of the sample was White/Caucasian (70.2%, 213), with the remainder identifying as Black/African

**Table 5** Effect of gendered PEBs on the difference between assumed sexual orientation of female and male targets, meta-analysis

Pro-Environmental Behaviors (PEBs)	Estimated assumed sexual orientation		Contrasts between traits		
	Female target <i>M</i> ( <i>SE</i> )	Male target <i>M</i> ( <i>SE</i> )	Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>
Feminine	2.36 (.44)	1.39 (.44)	.97 (.31)	3.16	<.001
Neutral	2.01 (.44)	1.63 (.44)	.62 (.30)	2.04	.021
Masculine	1.46 (.44)	2.18 (.44)	-.72 (.31)	-2.28	-.011

American (8.9%, 27), Hispanic or Latino/a (5.6%, 17), Asian (10.9%, 33), Native American (.70%, 2), Pacific Islander (1.0%, 3), Mixed race (.70%, 2) or Other (1.3%, 4). Using a slider scale from  $-5$  (*Strongly Democrat*) to  $5$  (*Strongly Republican*), more participants aligned with Democrats (46.9%, 142, responding  $-1$  to  $-5$ ) than with Republicans (34.3%, 104, responding  $1$  to  $5$ ) and Independents (18.8%, 57 responding  $0$ ). As in Study 1, participants were asked to indicate their sexual identity using a sliding scale ranging from gay/lesbian ( $-5$ ) to heterosexual ( $5$ ) with  $0$  labeled as bisexual. Most participants responded toward the heterosexual end of the scale (e.g., 80%, 241, provided a response of  $5$  and an additional 11%, 32, provided a response of  $4$ ).

### Procedure and Measures

Participants, in groups of two to five participants per session, were told that the purpose of the study was to assess how people talk about environmental topics and that they would be matched with other participants either in the current room or in a different room to discuss the topics after completing an initial survey. There were no participants in another room; however, because the number of women and men arriving to a given session of the study varied, participants were told about peers in another room in order to make it credible that they could be paired with one of two female participants or two male participants. Following the consent process and before participants began the survey, the experimenter told participants to wait a moment while they verified that the other room of participants was ready to begin. The experimenter pretended to check text messages on their phone and then gave verbal confirmation that the others were ready.

To be consistent with the cover story, participants were told that they would first complete a personality measure because we were “testing the impact of different personality variables on quality of discussions”. They completed a short personality filler test followed by a modification of Kosakowska-Berezecka et al.’s (2016) gender threat manipulation in which participants were randomly assigned to be in one of three conditions. In the two experimental conditions, participants’ ring finger and index figure were measured and compared to a ratio that ostensibly indicated a person’s sexual identity. They were told that the ratios were affected by the amount of “male

type” hormones their birth mother had when they were in gestation and that hormone level predicted whether they would be sexually attracted to women or men. They were provided with an alleged study supporting this assertion. They were then informed that their finger ratios either predicted they would be more sexually attracted to women than men or they would be more sexually attracted to a man than a woman. Participants in the control condition were told that the ratio indicated whether they had a strong personality where their behavior would follow their personality or a weak personality where their behavior would follow situational cues. They were told that their figure ratios provided ambiguous feedback indicating that sometimes they followed their personality and sometimes the situation.

Prior to indicating their partner preferences, participants provided demographic information, their interest in talking about pro-environmental behaviors (in order to increase believability of potential discussion partners’ preferences they would be provided later), and, as filler questions, knowledge level about the eight PEBs used in the study. Of these eight PEBs, participants then selected three that they would prefer to discuss during the study and provided their first name, which was allegedly to be shared with others. We created a measure of participants’ initial selections feminine and masculine topics but the measure had poor reliability ( $\alpha_s = -.52$  and  $-.14$ , respectively), potentially, because their selections were dichotomous ratings and only represented their top three selections. Hence, we do not use this measure in the study.

After reporting information about themselves, participants were presented a list of four potential discussion partners whose gender was conveyed by their names. The list consisted of two female and two male potential discussion partners, and each name was displayed with either three feminine or three masculine PEBs that these potential partners supposedly selected as their preferred discussion topics. The three topics presented were randomly selected from four feminine and four masculine behaviors so that partners would be similar and equivalently feminine or masculine but not likely to be identical. Participants were presented one of four possible lists of four names. The four lists placed each potential partner in a different place on the list such that they were all represented in the four possible positions across the four lists. Participants rank-ordered who they would like to have as a partner under

**Table 6** Differences between pro-environmental behaviors (PEBs) for assumed sexual orientation, meta-analysis

Target Gender	Contrasts between PEBs											
	Feminine vs. Masculine				Feminine vs. Neutral		Neutral vs. Masculine					
	Feminine <i>M</i> ( <i>SE</i> )	Neutral <i>M</i> ( <i>SE</i> )	Masculine <i>M</i> ( <i>SE</i> )	Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>	Effect ( <i>SE</i> )	<i>z</i> -score	<i>p</i>			
Female	2.36 (.44)	2.01 (.44)	1.46 (.44)	.90 (.31)	2.92	.002	.35 (.31)	1.13	.130	.55 (.31)	1.81	.035
Male	1.39 (.44)	1.64 (.44)	2.18 (.44)	-.79 (.31)	-2.54	.006	-.24 (.31)	-.80	.213	-.55 (.31)	-1.76	.040

the pretense that the rankings would be used to pair participants for later discussion. After indicating their partner preferences, participants were told that the computer was matching them with a discussion partner based upon all respondents' input and, while they were waiting, they were to answer further questions on the computer. They reported their interest in talking about pro-environmental behaviors and what they thought was the study's purpose and hypotheses. No participants guessed the study hypotheses. They then asked questions about their goals when discussing environmental topics, which were treated as filler items. Next, participants answered questions about their discomfort interacting with different groups of participants.

Last, participants answered questions about their interest in learning about, doing, and talking about pro-environmental behaviors ( $\alpha = .91$ ), demographic questions, and their guess as to the study's purpose and hypotheses. Participants were neutral on their interest in PEBs ( $M = 4.21$ ,  $SD = 1.48$ ), and this did not differ by gender or sexual identity feedback ( $ps > .10$ ). None mentioned the gendered nature of the PEBs. Several mentioned sexual orientation, typically in the context of whether it would influence how one talked about PEBs, which is consistent with the identity feedback they were provided. Only one person indicated the study was about with whom they would like to associate, but they mentioned both the other person's sexual orientation and political views, suggesting they may have guessed based upon the questions about comfort interaction with different groups of people. Given that this possibility and that removing the participant did not change the results, this person was included in the analyses.

**Discussion Partner Preferences** After viewing their four potential partners' names and supposed discussion preferences, participants ranked the four partners according to their preference.

**Discomfort with Gays and Lesbians** At the end of the study, participants indicated their degree of discomfort with interacting with gays and lesbians using eight items from LaMar and Kite's (1998) survey, which was designed to test this dimension of attitudes toward gays and lesbians ( $\alpha = .90$ ). As filler questions, they were also asked about their discomfort interacting with other groups (heterosexual women, heterosexual men, Democratic women, Democratic men, Republican women, Republican men).

## Results

To understand participants' social distancing from potential partners and social attraction to other partners, we calculated the likelihood that each potential partner was participants' bottom-most least preferred choice and top-most preferred choice, respectively. This resulted in eight dependent

measures derived from the combination of target gender (male vs. female) and targets' PEB preferences (masculine vs. feminine) and whether they were selected as the least or most preferred partner. (An alternative analysis using relative ranking of individuals is presented in the online supplement.) We first conducted logistic regressions to test whether prejudice level and sexual identity feedback influenced least and most preferred partners. Then we used nonparametric tests to compare preferences for gender-bending and gender-conforming male and female partners.

### Prejudice Level

Eight binary logistic regressions tested for the effects of prejudice on partner preferences for each of the eight possible dependent measures. We regressed these partner preference ratings on prejudice, participant gender, and participant sexual identity. There were no effects of prejudice and participant gender. There were several effects for participant gender which are addressed in the results for nonparametric tests.

### Sexual Identity Feedback

Eight binary logistic regressions tested for the effect of gender identity threat on partner preferences for each of the eight possible dependent measures. We recoded feedback so that sexual attraction to a person of the same gender was coded  $-1$  and indicated a threat. In contrast, sexual attraction to a person with a different gender was coded  $+1$  and indicated reassurance. Those who received personality feedback instead of sexual attraction feedback were coded  $0$  so that this coding indicated control. We excluded participants who did not indicate they were heterosexual because, as coded here, matching in this matter would presumably not be a threat and mismatching might instead be a threat. There were too few people who did not indicate they were heterosexual to analyze their data separately. Gender identity threat and participant gender were entered in the first step of the regression, and an interaction between the two were entered in the second step. There were no significant interactions nor main effects for sexual identity threat. As we noted, several participant gender effects are addressed next.

### Preferences among Partners

Friedman tests for nonparametric data revealed that the four choices all differed from each other for both women and men (see Table 7). Follow-up tests, using a Bonferroni correction for multiple comparisons set at  $p < .006$ , were conducted to understand these differences. First, we tested the likelihood of least and preferred choices over and above chance selection, which would be a 25% probability. Second, we used sign tests for nonparametric data to conduct paired comparisons.

**Female Participants** An examination of women's least preferred partners suggests that (a) women were more likely to avoid partners with masculine than feminine interests and (b) women were more likely to avoid men than women as partners. Combining these two effects, women were most likely to avoid a gender-conforming man and least likely to avoid a gender-conforming woman. Specifically, gender-conforming men were more likely than chance to be selected because women's least preferred partners and a gender-conforming woman were less likely than chance to be selected as their least preferred partners. Also showing distancing from gender-conforming men, women were more likely to select gender-conforming men as their least preferred partner relative to the other three potential partners. Similarly, showing a lack of social distancing from gender-conforming women, women were less likely to select gender-conforming women as their least preferred partner relative to the other three potential partners. Women's rating of least preferred partners did not differ between gender-bending women and gender-bending men.

Close to inverse effects were found for women's most preferred partners. Gender-conforming women were more likely than chance to be selected as women's most preferred partner, and gender-conforming men were less likely than chance to be selected as their most preferred partner. Gender-conforming women were more likely to be the most preferred partner than all the other potential partners. However, suggesting social distancing, women were also less likely than chance to not select a gender-bending woman as their most preferred partner, and this preference did not differ from their lack of preference for gender-conforming men.

**Male Participants** More clearly than women's preferences, men's preferences showed a desire to socially distance from gender-bending women. Men were more likely than chance to select the gender-bending woman as their least preferred partner and less likely to do so than the other three partners, of whom they were equally likely to select as their least preferred partner. They were also less likely than chance to select her as their most preferred partner and less likely to do so relative to all other partners.

Unlike their lack of desire to interact with gender-bending women, men were not particularly likely to socially distance from gender-bending men. They were no difference than chance levels to select him as their least preferred partner and their most preferred partner. Also, men did not differ in the likelihood that gender-bending men, gender-conforming men, and gender-conforming women would be their least or most preferred partner.



**Table 7** Likelihood that male and female targets were least and Most preferred partners, Study 3

Friedman tests	Pro-environmental Behavior (PEB)	Target's gender	Least preferred partner	Most preferred partner
Female participants	Feminine	Female	6% <sub>c</sub> *	64% <sub>a</sub> *
		Male	21% <sub>b</sub>	21% <sub>b</sub>
	Masculine	Female	25% <sub>b</sub>	5% <sub>c</sub> *
		Male	47% <sub>a</sub> *	11% <sub>bc</sub> *
Friedman tests			$\chi^2 = 53.12,$ $p < .001$	$\chi^2 = 138.40,$ $p < .001$
Male Participants	Feminine	Female	19% <sub>b</sub>	26% <sub>b</sub>
		Male	18% <sub>b</sub>	34% <sub>b</sub>
	Masculine	Female	46% <sub>a</sub> *	11% <sub>c</sub> *
		Male	17% <sub>b</sub>	29% <sub>b</sub>
Friedman tests			$\chi^2 = 35.07,$ $p < .001$	$\chi^2 = 17.89,$ $p = .001$

\* Indicates that the percent differs from .25, chance level, at  $p < .006$ ; Means with different letters within a participant grouping and within a row differ from each other with sign tests and  $p < .006$

## Discussion

Results demonstrate negative consequences of gender bending more so for women than for men in terms of being most likely to experience social rejection, especially by men. Gender-bending women were socially avoided by men relative to gender-bending men, gender-conforming men, and gender-conforming women. There was some indication that women also avoided gender-bending women: Women were as likely to not select a gender-bending woman as their top preference as they were to not select a gender-conforming man—who appeared to be their least preferred partner based upon both the person's gender and interest in masculine PEBs. However, women's preferences seemed to be most characterized by preferring to interact with a woman with interest in feminine PEBs and preferring to avoid men with interest in masculine PEBs.

The reasons for women's and men's partner preferences appeared to be different. Women's preferences appeared to be a function of both preferring to talk about feminine over masculine PEBs and preferring to talk with women over men. In contrast, men's selections suggest avoidance of gender-bending women. Thus, unlike women, men's preferences did not reflect preferences for one gendered topic over another gendered topic nor preferences for one gendered partner over another gendered partner. Their preferences also did not seem to be a function of prejudice against GSMs or being concerned about misclassification as gay: Men did not avoid men with interests in feminine PEBs, their preferences were not correlated with prejudice against gays and lesbians as assessed by discomfort interacting with them, and there was no effect of sexual identity threat on preferences. The bias could be a result of backlash against women who engage in masculine behaviors (Rudman and Fairchild 2004). However, trait ratings from

Studies 1 and 2 suggest that avoidance was not because of negative impressions of gender-bending women, and thus, possibly not prejudice, because all targets were rated more positively than negatively. Instead, Studies 1's and 2's results suggest that avoidance may be because of discomfort engaging with a woman who is not clearly heterosexual. A potential explanation for his discomfort is that men have more well-defined behavioral scripts for how to engage with heterosexual women. Another possibility is that women's preferences for masculine behaviors may suggest other identities that men wish to avoid, such as a feminist or an environmentalist (Bashir et al. 2013).

## General Discussion

The purpose of the present research was to identify social consequences for engaging in gendered pro-environmental behaviors. The first two studies assessed social consequences in terms of what people would think about people based upon their gendered PEBs and revealed that gender bending on PEBs produces uncertainty that an actor is heterosexual. The third study assessed social consequences in terms of how people would be treated for gender bending and gender conformity on PEBs. This third study revealed that, via social distancing, men socially ostracized women who displayed gender-bending PEB interests.

Consistent with research on gender inversions as cues for sexual identity (Hypothesis 1; Kite and Deaux 1987; Rule and Alaei 2016), Studies 1 and 2 demonstrated that when people engage in gender-bending PEBs (women in masculine PEBs and men engaging in PEBs), observers become less certain of the actors' heterosexual sexual identity compared to when they engage in gender-conforming PEBs (women in feminine

PEBs and men in masculine PEBs; Hypothesis 2). Gender-bending individuals were not, on average, seen as lesbian or gay, but they were less assuredly identified as heterosexual, which can have anticipated or actual social consequences. Masculine PEBs appear to be a stronger signal of sexual identity than feminine PEBs: Results from the single paper meta-analysis demonstrated that judgments of sexual identity differed between masculine PEBs and both feminine PEBs and neutral PEBs. Judgments did not differ between feminine and neutral PEBs. That is, relative to engaging in feminine and gender-neutral PEBs, engaging in masculine PEBs called into question women's heterosexuality whereas engaging in masculine PEBs helped to affirm men's heterosexuality. Study 2's results also suggest that the impact of engaging in masculine PEBs on judgments of a person's sexual identity may be extended to judgments of the sexual identity of that person's friends (Hypothesis 3).

Studies 1 and 2 indicated that the effects of gender bending and gender conformity on judged sexual identity were not a result of their effects on gender trait judgments. Contrary to prediction (Hypothesis 1), the only effect of gendered PEBs on gendered trait ascriptions was that those who engaged in masculine PEBs were perceived as having more masculine traits than those who engaged in feminine PEBs. However, even with this effect, Studies 1 and 2 indicated that a social consequence of engaging PEBs was that a person engaging in PEBs was perceived to have more feminine than masculine traits when the PEBs align with traditional feminine and masculine gender roles.

The social consequences for sexual identity and trait impressions could have implications for people who may strategically select behaviors to accrue or avoid such social consequences. For men, engaging in masculine PEBs as a way to mitigate threats to gender identity (e.g., for engaging in behaviors associated with women; Rome 2006; Vandello et al. 2008) could make men appear more masculine and reduce uncertainty about men's heterosexual identity, which are important motivations for men (Bosson et al. 2006). However, this strategy would not reduce perceptions about a man as feminine, and they still would be perceived as more feminine than masculine. For women concerned about social repercussions for gender role violations, they can engage in masculine PEBs and still be perceived as feminine, but they may find that people question their heterosexual identity, which could lead to social ostracism and/or discrimination, as suggested by the findings in Study 3.

In Study 3, women's preferences appeared to reflect preferences for feminine over masculine topics and interacting with women more than with men. Yet, a desire to be clear about one's sexual identity could be a reason why, in Study 3, women's partner preferences indicated a stronger interest in interacting with people interested in feminine topics, especially women. That is, what may look like preferring to interact

with a partner based upon shared interest may, at its foundation, be because women in our study were motivated to signal their heterosexual identity and this led them to express interest in talking about feminine topics.

Men socially distanced from gender-bending women (women who showed interest in masculine PEBs) and no other potential partners. Men did not seem to socially distance from partners from concern about misclassification of their sexual identity: Sexual identity threat did not influence their partner preferences, and they socially distanced from gender-bending women and not gender-bending men. The latter which could have signaled concern about misclassification. Thus, our results suggest that men's social distancing is better explained by prejudice against gender-bending women. We did not find that prejudice against gays and lesbians was correlated with social distancing. However, this lack of relation could be because Study 1's results suggest that men would have been uncertain about gender-bending women's heterosexual identity. Thus, distancing could be because of anticipated discomfort interacting with women with uncertain heterosexual identities or prejudice against them, not specifically prejudice against lesbians.

Our suggestion that prejudice more so than concerns about misclassification influenced partner preferences differs from previous research that points to the opposite conclusion (Buck et al. 2013). Differences between our study and their study might explain the different results. First, we did not explicitly note the sexual identity of partners whereas Buck et al. (2013) explicitly noted when potential partners were gay or lesbian. Thus, concerns about misclassification might emerge when a potential partner's sexual identity is clear rather than when the partner's heterosexual identity is uncertain, as our results from Studies 1 and 2 suggest and which may have been participants' impression in Study 3. Second, our research provided participants with alternative explanations for their preferences (i.e., topic preferences) that would allow them to create attributional ambiguity about their preferences (Snyder et al. 1979). Thus, our study may have allowed for the subtle display of prejudice, perhaps prejudice specifically toward people who were neither clearly heterosexual or lesbian, which may have meant that prejudice would be more likely to influence behaviors in our study than it would have in Buck et al.

## Theoretical Implications

The present research has implications for gender research and theory. Our findings for judgments of sexual identity versus gendered traits can be important for researchers interested in the social consequences for gender bending and gender conforming. Our findings suggest that these researchers may want to pay particular attention to beliefs about the consequences for gender bending and gender conformity on

judgments of sexual identity. People may not mind, and may even desire, having positive feminine and masculine traits ascribed to them. Their more fundamental concern may be judgments about sexual identity (Bosson et al. 2006). The reason people may be concerned about gender traits is that ascribed gendered trait may follow from, rather than precede, judgments about sexual identity.

Also relevant to gender research, our results point to complexity about determining whether behaviors are feminine or masculine. The femininity associated with PEBs appears to spill over onto behaviors that were equally associated with men and women as well as more associated with men than with women, as indicated in pilot testing. This suggests that it might be important to consider what it means for behaviors to be considered consistent with female roles or to be labeled as feminine. Gender roles have classically been defined as expectations about sets of behaviors enacted by women, with a different set for men, and these set up gender stereotypes about women and men that are consistent with these roles (Eagly and Wood 2012). Yet, our studies found that PEBs selected based upon the expectation that they would be enacted by women and men equally or by men more than by women did not appear to overcome feminine associations with those who engage in PEBs because the actors of neutral and masculine PEBs were ascribed more feminine than masculine traits. Perhaps this is because the behaviors we studied were in the private sphere, which is associated with women. Or, perhaps it is because caretaking of the environment is sufficiently similar to caretaking of people to make it seen as feminine, even if done in traditionally masculine ways. Either way, these features of behaviors appeared to have carried more influence than the expectation that women versus men would engage in PEBs.

The present research also confirms the importance of researchers studying environmental attitudes, behaviors, and identities to integrate research and theory about gender stereotypes, sexual identities, and gender roles into their models. As an example, the theory of planned behavior has frequently been applied to predicting likelihood of engaging in PEBs (Klöckner 2013). A key element of this theory is that attitudes about behaviors reflect expected consequences for engaging in behaviors weighted by the importance placed on such consequences. Expectations about social consequences of engaging in gendered PEBs could, thus, influence attitudes about the behaviors. It is through this mechanism that gender expectations may influence the likelihood of engaging in certain PEBs.

Although the present research indicates different social consequences for gender bending and gender conformity with PEBs, it is possible that a more impactful distinction may be between engaging in any type of PEBs versus engaging in behaviors not socially defined as being relevant to the environment because those engaging in masculine PEBs were ascribed more feminine than masculine traits. Regardless of whether the distinction is between PEBs and non-PEBs or

between feminine and masculine PEBs, the present research suggests that intersectional identities, specifically intersections among environmental identity, gender, and sexual identities could inform researchers studying environmental identity and PEBs. For example, the interactions may facilitate environmental identities and behaviors, particularly feminine PEBs in the case of women, but create ambivalence, in the case of men, due to the social consequences they might anticipate if their PEBs were to become public.

## Limitations

We did not have a condition in Studies 1 and 2 where targets engaged in behaviors irrelevant to the environment so we cannot definitely say that it was engaging in any type of PEBs that created a feminine impression. However, the traits we selected were based upon pretesting that indicated that people associated the feminine traits with women more than men and associate masculine traits with men more than women (Swim and Geiger 2018). This pretesting suggests that engaging in PEBs resulted in seeing the male target as more feminine than masculine. Moreover the interpretation that PEBs are predominantly seen as feminine more than masculine is consistent with the conclusion that Brough et al. (2016) draw from their study about the femininity of green consumption practices.

The results of the present study are limited to the samples used. This may be particularly important for interpreting results for Study 3 where college students were participants (cf. Sears 1986). For example, the tendency for younger adults to be more accepting of gay and lesbian relations than older adults (Wilke and Saad 2013) suggests that prejudice and or concern about misclassification may be stronger for older adults.

Our lack of ability to find effects for sexual identity feedback and prejudice may be a function of the study design. After participants were given sexual identity feedback they indicated their topic preferences. This may have allowed people to mitigate effects of the feedback prior to their partner preferences. It is also possible that having the feedback more public may have made the effects stronger (e.g., Weaver et al. 2013). It may also be important to measure prejudice in a separate study prior to participating in the study. Participants may have, for example, altered their responses so as to make it look like they were not basing their preferences on prejudice. Last, in order to detect what might be more subtle effects of prejudice may require a larger sample size than we had in Study 3.

We are unable to test, but instead only infer from Studies 1 and 2 results that men's social distancing from gender-bending women in Study 3 was a result of uncertainty about the women's heterosexual identity. The first two studies suggest that partner preferences might be influenced by judged sexual identity of gender-bending or gender-conforming partners. Studies 1 and 2 suggest that people would be less certain of

a gender-bending partner's heterosexual identity than a gender-conforming partner's heterosexual identity. However, we did not ask about judgments of sexual identity in Study 3. This was because our focus was on the social consequences. Asking about partners' sexual identity before participants indicated partner preferences could have influenced their preferences. Asking after their preferences may not have provided accurate perceptions because their preferences may influence the identities they would report for partners.

One might consider the findings here to be a specific demonstration of more general assumptions about engaging in feminine and masculine behaviors and biases against gender bending. However, our results do not completely replicate previous research: Contrary to research on associations between subcomponents of gender stereotypes, including links between gender role behaviors and gender traits (Deaux and Lewis 1984; Haines et al. 2016), we did not find strong evidence of such a link for gendered PEBs. Moreover, because PEBs have been considered feminine, which was confirmed by our finding that even masculine PEBs were associated with feminine more than masculine traits, it was not a foregone conclusion that we would have found effects on judgments of sexual identity and social distancing.

### Future Research Directions

Results and the noted limitations suggest that it would be beneficial to test the generalizability of our effects across different samples. As we suggested, it might be useful to test whether concerns about misclassification emerge in other samples (e.g., older samples). It might be also informative to test whether gender-inversion cues based upon gender of PEBs might be stronger for people who rely more upon gender roles for inferring another person's sexual identity, which could be individuals with less frequent contact with gays or lesbians (Rule and Alaei 2016).

Future research might more closely examine whether there are unique aspects of the findings based upon the PEBs used in the present research. Gender bending within the context of PEBs may have tempered the ability for feminine and masculine qualities of PEBs to influence judgments that a woman is a lesbian. Perhaps there are other behaviors that may have been more clearly defined as masculine (e.g., physically blocking companies' ability to construct pipelines). It might also be useful to frame a masculine behavior as being either done for environmental reasons (e.g., maintaining one's car in order to reduce pollutants) or other reasons (e.g., to save money or because one likes to work on cars) to confirm that it is the environmental framing that makes a person appear feminine. Additional research might also examine other environmental behaviors, such as anti-environmental behaviors. For example, anti-environmental behaviors include those consistent with female roles (e.g., purchasing beauty products that,

cumulatively, use much natural resources to make and distribute and, in many cases, can involve animal cruelty) and masculine roles (e.g., purchasing sports cars that use lots of gas).

Future research could better understand motives for social distancing. Our explanation for the discrepancy between our findings and Buck et al.'s (2013) suggests the need for research on when prejudice versus concerns about misclassification explain results rather than whether one or the other predicts results. It might also be important to separate motives for social distancing from motives for social attraction and to search for other motives such as discomfort engaging with people whose sexuality is uncertain, ambiguous, or fluid.

Future researchers may also wish to test for other identities that may be cued by gender role violations. For example, future research could better understand what people mean when they indicate that they are uncertain that another person is definitively heterosexual or definitively lesbian/gay. It could mean, for example, that they think it possible that the person is bisexual or pansexual. It could mean that they are reserving judgment about a person's sexual identity. This reservation may make them uncertain about how to interact. These possibilities point to the importance of more gender research on anticipated and actual ostracism based upon sexual identities that do not map onto being perceived as heterosexual versus lesbian/gay.

Lastly, future researchers may wish to test whether the social consequences identified here explain gender differences in willingness to engage in different types of PEBs. Social role theory suggests that social penalties in terms of having one's sexual identity questioned and experiencing social distancing would discourage engaging in PEBs, especially when they represent gender bending (Diekmann and Eagly 2008) and research asking about willingness to engage in gendered PEBs have such consequences (Dahl et al. 2013). However, other research results on socially engaging in PEBs are positive (Griskevicius et al. 2010), and our participants ascribed more positive than negative traits to those who engaged in PEBs. Thus, future research might want to cross gendered behavioral associations with whether the behavior is perceived to be environmentally relevant to test whether the anticipated and actual social repercussions of gender bending are mitigated by the social benefits of engaging in PEBs.

### Practice Implications

Results for the present study can have implications for those who are working to encourage more people to do more PEBs. To the extent that the social repercussions identified here influence behavioral choices, gender-related social consequences could direct PEB choices, not just among men, which has been previously demonstrated with feminine PEBs (Brough et al. 2016; Dahl et al. 2013), but also potentially among women for engaging in masculine PEBs. If women

and men choose to gender bend with PEBs, they may face questions about their sexual identity, and women may be particularly likely to encounter subtle forms of discrimination from men in the form of social distancing. Thus activists, policymakers, and practitioners working to engage in and promote PEBs may wish to take into account pressures to conform to gender roles as an additional barrier to individuals' behavioral change.

Clients may bring concerns about environmental problems to their clinical and counseling therapists (Doherty and Clayton 2011). Our results suggest that female clients may not feel supported, especially by men, when they want to engage in masculine PEBs. For example, social distancing demonstrated in Study 3 could result in feelings of social isolation and exclusion (Riva and Eck 2016), which our results suggest would be particularly likely for women who demonstrate interests in masculine PEBs. Thus, it may be helpful to isolate different reasons for the lack of support they may be receiving for their preferred PEBs. Clients may also find partners are resistant to engaging in PEBs because of what it may suggest to others about their sexual identity. For example, people who are not open about their sexual identity may be hesitant to engage in gender bending with PEBs if they are trying to conceal their sexual identity. This issue could be addressed within therapy sessions.

## Conclusion

The future of the planet and all that depend upon it for life rely on our ability to better care for the environment. The present paper illustrates how integrating gender role theory with research on pro-environmental behaviors furthers our understanding of gender-related stressors when engaging in such behaviors as well as possible barriers to engaging in PEBs. Our paper contributes to other research indicating that qualities of PEBs influence PEB choices, and, in particular, gendered qualities of PEBs may influence behavioral selection because there are social consequences for gendered PEB preferences. Notably, preferences (a) influence judgments about the sexual identity of those doing the behaviors, (b) influence judgments about those associated with the person doing the behaviors in a manner consistent with research on stigma-by-association, and (c) increase distancing from people, especially men's distancing from women, with interest in gender-role incongruent behaviors. Our paper contributes to gender research by indicating that researchers might attend to the implications of attempts to masculinize feminine behaviors and by highlighting the need to better understand the implications of questioning another's sexual

identity, potentially as separate from prejudice against people who are lesbian or gay. Recognizing the social consequences of gendered PEB choices potentially can move humanity farther along with efforts to create a more sustainable future.

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## Compliance with Ethical Standards

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