Gender and Climate Catastrophe

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> *What was for decades an intellectual exercise, a concern, a fear, a prediction, an ominous warning, a cautionary tale, is now our cumulative global reality.*
>
> *—Hedenqvist et al., 2021*

> *Can I imagine my elsewhere?*
>
> *—Hélène Cixous, 1975*

Introduction

One of the most circulated terms of our time, yet not circulated enough, is climate change (or climate crisis/environmental crisis). As a phenomenon, climate change is often discussed in political and scientific discourses as an effect of the Anthropocene[1], a term that marks the new geological ethos in which humans' overwhelming influence on Earth has risen to haunt the living—human and non-human (Grusin, 2017; Hird & Yusoff, 2016; Walton, 2020). This haunting is materialized in multiple planetary responses taking the shape of typhoons and floods in East Africa and Asia, hurricanes in the Caribbean and the United States, droughts in South Africa and the Middle East, the melting of permafrost and ice sheets in Siberia and Greenland, wildfires in Australia and America, flooding in Central Europe caused by Storm Boris[2], plus potential "planetary boundary threats"[3] connected to marine plastic debris, wastelands, water and soil contamination, and toxic fall outs (Villarrubia-Gómez et al., 2018; see also Hird, 2017). This is not to mention everyday experiences and emergent modes of living and dying on a damaged planet (Tsing et al., 2017; see also Alaimo, 2019; Radomska et al., 2020; Sandilands, 2017), environmental health problems (Ah-King & Hayward, 2014; Alaimo, 2010; Cielemęcka & Åsberg, 2019; Léchenne et al., 2024; Murphy, 2017; Roberts, 2007; Tuana, 2008), environmental violence and struggles for justice (Åsberg & Radomska, 2023; Gaard, 2017), (multi-)species extinction (Margulies, 2022; Radomska, 2023, 2024; van Dooren, 2014), climate migration and mass displacement connected to environmental changes, food shortages, and so on (Carney, 2024; Gioli & Milan, 2018; Rajabhoj, 2021). All contribute to more existential and philosophical questions around life, death, and the problem of human-centrism (Åsberg, 2017; Åsberg & Braidotti, 2018).

The cause of such devastations is often connected to unevenly produced Co2 emissions and fossil fuels, capitalist modes of production and consumption, and wars and military conflicts (Christensen et al., 2009). To put it simply, "settler/colonial neoliberal capitalism" heavily connected to "multiple and slow violences of masculinist social injustices" (Hedenqvist et al., 2021) have brought us to a moment of crisis. This crisis possibly started already with the agricultural revolution and has yet to be stopped, if only a global census could be reached to abolish this extractivist machinery (Hird et al., 2022). It could be argued that in the Anthropocene—or even (m)Anthropocene, to emphasize its white, rich, extractivist, Global North, male dominance (Pulé & Hultman, 2021)—the concept of "crisis" carries with it an ominous warning and a witnessing to the degradation of a planet that is not doing well. The concept of crisis embodies a "terrible time but also the end of the (lived) time" (Jones et al., 2020, p. 388; see also Margulies, 2022), suggesting an urgency to act with accountability and care for the Other if we are to survive—nature, other species, and dehumanized others (Karkulehto et al., 2022; Plumwood, 2002; Tanyang, 2020). Though emerging from a disastrous existential and planetary catastrophe, the concept of crisis could also be understood in relation to its Greek etymology "krisis," meaning "decision," a linguistic strategy that shifts the emphasis from disaster to a lack of effective and ethical decision-making, radical change in action, and responsiveness to the environment, which some may say is the real crisis at hand (Warren & Clayton, 2020; Woodbury, 2019). The era of a crisis in this sense is a temporal continuum: a period of the revelation of a state of emergency and the criticalness of the coming years in which big decisions are to be made. In this sense, a crisis is always already transformative (Hearn, 2022; Wojnicka, 2021).

Understanding crisis as a disaster and its disastrous effects on the one hand, and as the critique of the glocal responses on the other hand, has been part of environmental studies and gender studies, with many scholars situating "this crisis" within contemporary gendered political contexts. Issues such as post-truth, populism and environmental denial (Krange et al., 2021; MacGregor, 2014, 2022; Rosamond & Davitti, 2023; Vowles & Hultman, 2021), toxic masculinity, petro-masculinity and industrial/breadwinner masculinities (Daggett, 2018; Hultman & Pulé, 2018; Letourneau & Davidson, 2022), colonial capitalism and progress narratives (Hird et al., 2022; Shiva, 2008, 2016, 2020; Tuana, 2023), intersectionality and human rights (Rosamond & Davitti, 2023), techno-escapes and techno-solutionism (Haraway, 2015; Öhman, 2016; Shen et al., 2023), epistemologies and knowledge production practices (Gaard, 2017; Haraway, 2015; Latour et al., 2018; Neimanis et al., 2015; Tsing, 2012), and uneven distribution of vulnerabilities and agency (Alaimo, 2010; Johnson, 2017; Kirkland, 2011) represent some such discussions. The stakes here are not only calling for a sharper analytical lens that attends to the sociopolitical aspects of climate change catastrophe, and accountability for the uneven distribution of risks and vulnerabilities along the lines of social categories, nor is it enough merely to highlight the inefficiency of the political responses by different governments. It is also necessary to get to the nitty-gritty of how sociopolitically situated relations of power along the axes of gender, race, ethnicity, socioeconomic conditions, geopolitical locations, species, and more are constitutive of climate change while being (re)constructed by it.

Perhaps, the presented complexity needs imagination, political radicalness, and a pinch of non-positivist scientific knowledge production where matters of gender and climate change emerge as entangled phenomena. It is not surprising that a surge of alternative engagements and modes of knowledge production is flourishing, often embedded in activism and collective resistance (MacGregor, 2019; Smyth & Walters, 2020, Tanyang, 2020; Miller et al., 2013), artistic/creative re-imagination/re-envisioning (Alaimo, 2019; Allison, 2017; Haraway, 2015; Margulies, 2022; Radomska, 2023, 2024; Wynter & McKittrick, 2015), and Indigenous cosmologies and citizen sciences (Alook & Bidder, 2023; Burnett, 2022; Davies & Mah, 2020; Knoblock, 2023; Lewis et al., 2020; de la Bellacasa 2017; Öhman, 2016; Öhman & Wyld, 2014). Many

of the scholars cited above, such as Tuana (2008), Haraway (2015), Tsing et al. (2017), de la Bellacasa (2017), Hedenqvist et al. (2021), and Åsberg and Radomska (2023), call for a radical commitment to a multi-relational, multispecies, decolonial, feminist care economy that perhaps needs to be anchoring itself to a politics of degrowth and practicing the "art of living on a damaged planet" (Tsing et al., 2017). This is especially needed for those configurations of men and masculinities who damage the planet the most (Eversberg & Schmelzer, 2023).

Lastly, committing to climate change responsible responses through political and ethical actions needs to attend to emotions, not only emotions that are produced through the affective register of trauma/grief/crisis, but also the joyfulness, exhilaration, and pleasure that can be summoned through mundane practices of caring for the environment (Nightingale et al., 2022; Wågström & Michael, 2023). An embodied relational meaningfulness that spawns an imaginary of an otherwise towards which the act of stopping climate change is reoriented (see, e.g., Bauhardt, 2014; Dengler & Lang, 2022; Hultman & Pulé, 2018; Orozco & Mason-Deese, 2022). In other words, in line with feminist utopianism, working towards climate care and justice is not merely a sorrowful act, or a must-do, born out of catastrophe and in the hope of saving the planet for the future (Haraway, 2015). Instead, climate care could be something meaningful in the present, and for the present, that is joyful and fulfilling (see, e.g., Houtbeckers, 2021; Khanna, 2021; Soper, 2023).

The climate crisis involves both material reconfigurations and haunting of the ghosts of "settler/colonial neoliberal capitalism," as well as a crisis in how humans make decisions about the emergency, and it is for this reason that feminism/gender studies have implicitly and explicitly contributed to these discussions. As Greta Gaard (2015, p. 20) argues, gender studies have since the mid-1970s been well-equipped, epistemologically and methodologically speaking, to address "structural inequalities in the climate crisis, and to unmask the gendered character of first-world overconsumption." In this special issue, we build on the previously presented feminist scholarships as the contributors engage with matters of the climate crisis from various locations and perspectives within gender studies: for example, queer, posthumanist, decolonial, ecological, and feminist theories. In what follows, we start by revisiting a previous special issue titled "Gendering Climate Change" that was published in this journal in 2009. As we reflect on how matters of gender and climate issues were theorized in this 2009 special issue and read it through the mapped-out previous research we have presented so far, we aim to situate the current issue's contributions in contemporary gender studies.

Revisiting the special issue on "Gendering Climate Change"

In 2009, Hilda Rømer Christensen, Michala Hvidt Brengaard, and Helene Hjorth Oldrup co-edited a special issue for the journal *Gender, Women, & Research*, titled "Gendering Climate Change" (from here on referred to as GCC), which was released in conjunction with a large international conference on the topic. The aim for curating GCC, as mentioned by the editors in the introduction, was to provide "a critical corrective to mainstream research and political strategies, where the focus on climate mainly emphasises 'gender-neutral' technology, economy, energy security and high politics" (Christensen et al., 2009, p. 4). They described the contributions of their edited collection along three main lines, which we briefly explain below. We do this because, 15 years later, the discussions presented in GCC remain highly relevant and return in similar yet different fashions in the current special issue's contributions. Namely, (1) How can thinking about climate change, and the challenges connected to it, contribute to the enrichment of feminist/gender studies theory and method? (2) How can discussions about gendered structures of power in climate change discourses/planning take a non-dualistic approach by critically exploring the interrelations between global/local, human/non-human, and public/private to name a few? (3) Lastly, how can gender analysis, gender-responsiveness, and gender-sensitive

approaches be included in political, scientific, and technological knowledge productions and practices about climate change?

Christensen, Brengaard, and Oldrup (2009) situated the GCC, and the above-mentioned questions, at the intersection of gender studies and climate research, starting with the genealogies of ecofeminism developed in the 1980s. They argue that ecofeminism raised awareness about the exploitation of women and nature as entangled, claiming that the freedom of one depends on the other. According to ecofeminists, nature as well as women have been historically exposed in similar ways to the gendered systems of power and capital, in a world running on masculine values. In other words, ecofeminism argues that the very modernist patriarchal articulation of nature as feminine (feminization of nature and naturalization of women) and against masculine culture (masculinization of culture and the figure of the rational man) "permits the treatment of women and the earth as resources to be controlled and exploited" (Christensen et al., 2009, p. 5). Instead, ecofeminist thinkers suggest replacing overtly normalized and highly valued masculine traits, such as rationalism, production, and technological progress, with "the life-giving principles of women and nature" (p. 5).

The GCC special issue affirmatively engaged ecofeminism as the contributors critically revisited and reflected on ecofeminism through different theoretical moves. For example, revisiting postcolonial ecofeminism through a postmodern lens, Sowmya Dechamma (2009) problematizes Vandana Shiva's ecofeminist writings as she argues that Shiva tends to homogenize the Indian context and the "Indian Woman." Dechamma argues that Shiva is so caught in an oppositional dualism of West/East in her postcolonial critiques of environmental issues and the pressing issue of "biopiracy" that she fails to account for the existing "Hindu patriarchy" and its multiple caste structures. Dechamma argues that, though a critical move against the hegemony of the West in agricultural industries was perhaps much needed, Shiva's theorizing does this at the expense of essentializing not only the "third world and its woman," but the binary of man/woman itself. Moreover, Dechamma argues that ecofeminist writings often draw on a sense of essentialized spiritualism, which though important, as it highlights such cosmologies as a valid source of knowledge, downplays the complex power relations within and between sects with which such spiritualism is affiliated (2009, p. 101; see also Agarwal, 1996). Dechamma asks, "Apart from being a symbolic power, does a goddess really challenge male religion?" (2009, p. 103; see also Menon, 1999). Other postmodern and poststructuralist contributions that take an anti-essentialist approach to gender and nature in the GCC come from queer and intersectionality theories (e.g. Soper, 2009; see also Alaimo, 2010; Sandilands, 1999). Similar to Dechamma's postcolonial take, these theoretical contributions problematize the essentialized connection between female embodiment and womanhood common in ecofeminist writings. An essentialism that misses the differences within the category "woman," such as class, while simultaneously naturalizing and romanticizing the unholly relationship between body/woman and nature (Soper, 2009).

Other contributions to the GCC special issue could be traced to liberal ecofeminist perspectives. These contributions engage the policy processes through which climate issues are discussed and decisions are made, highlighting that the mentioned practices and processes still exclude women's voices/knowledges (Röhr, 2009; see also Hannan, 2009; Seager, 2009). Moreover, they argue that even when women enter the discourse, they are often represented as victims. The contributors to GCC argue that we need to go beyond discourses that paint women as passive victims of climate change and rely on women's embodied knowledge and agency as a vehicle for change. Similar to postcolonial, postmodern criticism, this line of argumentation also reflects on the importance of positionality and situatedness. Furthermore, it presents the inclusion of women and their various embodied knowledge as one prominent departure from the masculine, colonial, capitalist, technoscientific approaches to climate change issues and climate change policies (Bauer, 2009; Crowley, 2009; Offenberger & Nentwich, 2009; Seager, 2009).

Lastly, the GCC special issue presents a material transcorporeal feminist approach in which corporeal theories meet intersectionality (Alaimo, 2009; Lykke, 2009). In other words, going beyond a dualistic approach to theory (going beyond positivism as well as cultural essentialism towards material-discursive entanglements), Stacy Alaimo (2009) and Nina Lykke (2009) argue that feminists need to pay attention to the entanglements of matter and discourse through which climate change and gender are enacted in differentiated ways. For example, Alaimo's concept of "transcorporeality" recognizes the substantial interconnections between human corporeality and the "more-than-human" world. And Lykke revisits the notion of intersectionality as a promising concept that helps us to analyze gendered power relations while including matters of nature, body, and species. She asks who the human and non-human vulnerable groups are among the "vulnerable themselves." Such new materialist rethinking of climate change issues and gender not only deconstructs and de-essentializes the category of gender and its relation to nature but also nature itself as material-discursive configurations always embedded in, and enacting, power relations (Hultman, 2013).

While not the direct object of study in the contributions to the 2009 special issue, grassroots activism is yet another prominent thread within gender studies when discussing climate change, especially studies that are situated at the intersection of gender research and decolonial/postcolonial/Indigenous studies (Gärdebo et al., 2014; Shamasunder et al., 2020)[4]. Historically, women have been active in planetary care, showing up around the table when climate change has been discussed (Röhr, 2009). However, despite such a history of planetary care and knowledge, women organizing around environmental health, habitats, and livelihood have been marginalized in debates about climate change in global, regional, national, and local processes (Gaard, 2015). Instead, since the first United Nations Framework Convention on Climate Change (UNFCCC COP) in 1995, solution-making and strategizing for climate response has been heavily portrayed and approached as "a technoscience challenge to be solved, re-iterating the colonial capitalist systems of power and domination" (Gaard, 2015, p. 20; see also Röhr, 2009). This technoscientific solutionism that is heavily connected to masculinity tends to refrain from "substantially transforming ideologies and economies of domination, exploitation and colonialism" (Gaard, 2015, p. 20), which according to many (eco)feminists is a much-needed incentive in climate change actions.

We find the above-mentioned topics, approaches, and theories that shaped GCC in 2009 still relevant and even pressing for gender research on climate change. Gender scholarship and gender equity have yet to take center stage in academia, economy, or politics (Ahlborg et al., 2024; Arora-Jonsson & Wahlström, 2023). However, we would like to position this special issue and ourselves slightly differently in line with changes in the field (MacGregor, 2022). We do this for a number of reasons: because it helps us to better capture (1) the contributions to the current special issue, (2) contemporary gender research on climate change, and (3) the urgent need to elaborate on constructive ways forward, while simultaneously staying connected to GCC. Namely:

- Narratives of growth, development and progress
- Whiteness, masculinity, and climate catastrophe
- From technoscapes to posthuman care
- Affective registers, feminist aesthetics, and writing with climate change.

Narratives of growth, development, and progress

As mentioned above, the unevenly distributed effects of the planetary emergency, the gender dimension of the climate footprint, and intersectional aspects of climate change/responses along the lines of gender, race, class, and more have been part of gender research for fifty years (Arora-Jonsson, 2014). Answering the "woman's questions" has been a crucial part of the development

strategies of the Global North, especially when acting in the Global South.

Feminist engagement with matters of environmentalism and women during the 1970s, 1980s, and 1990s can be divided into three main themes: firstly, the question of women and development (WAD); secondly, women in development (WID); and lastly, gender and development (GAD) (Arora-Jonsson & Gurung, 2023; Chowdhury, 2016). WAD took a "welfarist" approach to the "woman question" in development, connecting it to reproduction. As such, WAD reduced the (environmental and economic) struggles of the Global South and its women to a population matter that could be solved through family planning and sterilization programs targeting women (Chowdhury, 2016). Other issues, such as providing clean water and food security, were also discussed as important environmental issues to work with through developmental aids. The discourse often reduced women in the Global South to passive victims who needed to be rescued by the Global South's initiatives and development agenda (Arora-Jonsson, 2011; see also Resurrección, 2013; Shiva, 1993, 1994).

In the 1970s, as critiques surfaced against such developmental agendas (e.g. by postcolonial and decolonial thinkers), the Global North took a different approach to the question of the woman in the Global South, namely emphasizing the importance of women's embodied knowledge and labor, especially in agriculture. By applying a top-down approach to knowledge production and knowledge transfer, WID attempted to address issues such as forest resources and agricultural vulnerabilities, while investing in increasing women's participation in the labor market as a strategy for development. Through different programs for financing, educating, and integrating women in the labor market, WID tended to "extend the benefit of modernization to women as well as men" (Chowdhury, 2016, p. 151). In effect, most such plans failed as they did not take into account the local cultural specificities around the role of women in social production and unwaged labor, exposing women to further inequality rather than empowering them.

Considering local gender relations, GAD was introduced as an alternative framework for development. Namely, "GAD suggested that development needed not merely to take women into account but also to bring democracy to bear on the development process by the creation of strategies to allow the poor to both identify their needs and recommend tactics to improve their condition" (Chowdhury, 2016, p. 153). Though GAD tried to include women more effectively in decision-making, even "educating" them so they could become leaders in the future development agenda through "empowerment, capacity building, and need satisfaction," they were criticized for yet again ignoring gender relations and the gendered distribution of power along multiple axes of class, gender, race, and so on. Improving on this, GAD included the "men question" on its agenda for change (which we will address more in the next section). Moreover, this bottom-up approach to development still exposed women to heavy loans and other financial debts, as they were to compete within a global chain of commerce. As such, these development agendas were criticized for capitalizing on the potential labor of women and their precarity in the Global South.

While the question of entangled power relations began with the GAD generation, it was in the 1990s, according to Gaard, that a radical shift towards intersectionality took effect in development discourses, reorienting gender research on environmental issues towards an "emphasis on feminist political ecology" (2015, p. 21; see also Chowdhury, 2016; Resurrección, 2013). Gaard argues that this shift turned the focus from the woman's question to problematizing the logic of development itself and the intersectionality of power relations. For example, researching the macro-level of gender structures connected to globalization and colonialization on the one hand, and the micro-level of examining local institutions' roles including marriage as an institution on the other hand, became a prominent approach to the studies of gender and climate. In other words, gender was approached in terms of entangled systems of domination that structure power relations within the context of climate change differently among

women (Gaard, 2015, p. 22; see also Goebel, 2005; MacGregor, 2010). This shift is important, because such power relations are historically situated, especially given the colonial capitalist and heteropatriarchal origins of development agendas and the Eurocentric vision of progressive growth (Arora-Jonsson, 2012). This is a legacy in which women/vulnerable groups were represented as passive, "incapable," and "lacking" knowledge, and hence in need of Western leadership. An imaginary that decolonial feminist scholars, especially those working on the interaction of race, climate change, and gender, have been deconstructing for decades, advocating the importance of women's and marginalized voices and their inclusion in policy decisions as active (political) agents of knowledge production/change (Mcleod et al., 2018). It is for this reason that an intersectionality lens on climate change policies and practice takes its point of departure for knowledge production and practice in marginalized experiences rather than narratives of progress and development (Nightingale, 2011).

In the current special issue, situated in such intersectional politics of feminist struggles and resistance to climate change, Ana Paulina Morera Quesada and Jenna M. Coughlin analyze how globalization of the discourses of activism through the globalized image of Greta Thunberg helps young activists in the Global South to simultaneously gain recognition while also facing erasure as they become "another Greta." In this article, titled "The Other Greta Effect (OGE): Recognizing Youth Climate Activists beyond Thunberg," the authors argue that while global leaders bask in the image of Greta Thunberg to portray Europe as the beacon of gender equality and climate change mitigation, they miss her message of climate justice. In other words, they argue that the OGE as a phenomenon downplays the structural causes of climate change, and still claims the role of environmental leaders for the Global North. Instead of such a reductionist representation, the authors present the Global Youth Activists Map as an alternative visualization of climate activism and climate justice and "ecologically informed intersectional analys[is]" of youth activists' motivations and messages (Tuana, 2019, p. 3; Quesada and Coughlin, this issue). They show that young activists in the Global South experience being labeled as "other Gretas" differently, and respond to it as both empowering and dismissive. Either way, these young activists reflect on the importance of having their own voices, narratives, and autonomy in order to be taken seriously.

An emphasis on feminist political ecology, historicity, and through intersectionality is important, not only in terms of representations or including voices from the margins but also in terms of an interruption and subversion of the hegemony of developmentalist solutions (Gonda, 2019). In other words, in the absence of such historicity situated in the intersecting axes of power, glocal political decisions about climate mitigation solutions may reproduce the same systems of global exploitation that have brought climate catastrophe to Earth. For example, much research shows the embeddedness of sustainable solutions and climate policies within colonial heteropatriarchy, which exposes marginalized communities to new modes of colonization, referred to as green colonialism/greenwashing/climate apartheid (Pelser, 2022; Ramirez et al., 2024; Sultana, 2022; Tilley et al., 2023; Tuana, 2019, 2023). In fact, practicing such accountability and attending to such complexities provides an openness to alternative modes of knowledge production as well as the right/claim to knowledge. As many scholars, whose work we have referred to in this section, argue, contemporary knowledge production about climate change as well as developed solutions are embedded in an existing network of power relations that are bound to certain ideas of progress and development, hence failing to address the issue of climate change responsibly (Di Chiro, 2017). Glocal political discourses on climate change, policy approaches, and policy instruments are still heavily situated in the "neoliberal project of market environmentalism" (Seager, 2009; see also Buckingham, 2020; Gaard, 2015; Liverman, 2009). Therefore, thresholds for action are often formulated as a trade-off between economic growth and planetary protection (Seager, 2009), heavily situated in the colonial progress logic of development.

For example, as Gaard describes, in the 1987 report from the World Commission on Environment and Development, *Our Common Future*, led by Brundland, it was mentioned that an environmentally aware and sustainable development is one that "meets the needs of the present without compromising the ability of future generations to meet their own needs." According to Gaard, this very statement disregards how a "continuation of the contemporary notions of economic growth and practices connected to it is fundamentally unsustainable when thinking about our finite planet" (2015, p. 21; see also Stoddard et al., 2021).

In line with such a feminist agenda, in this special issue, Nina Lykke highlights how mainstream political rhetorics in Denmark construct the country as a "green world leader, while turning a blind eye to the ecocides that have formed its landscapes." In her article, "Listening to the Ancestral Wisdom of Diatomite Cliffs: Rethinking Danish History in Times of Climate Catastrophe," Lykke thinks with Berlant's concept of "cruel optimism" to analyze how such approaches to green leadership might be getting in the way of actual environmental mitigation. Instead of getting stuck in such neoliberal colonial modes of thinking about climate change, Lykke invites us to "explore whether affected and affecting creative writing and speculative story-telling can be used to counter-act the cruelly optimistic indifference and insensitivity towards the more-than-human world, cultivated through normalization and naturalization" (Lykke, this issue).

Lastly, the arbitrary articulation of climate change policies, marked by the marketization of a solution and neoliberalism, describes responsibility for climate change, and action, as something general and universal. It underplays the role of the global industrial revolution and colonial extractivism, which established the Global North as the nucleus for progress and technological innovation, whose establishment as such was and is most responsible for the contemporary climate catastrophe. However, climate change responsibility, as well as the green transition, often hold the "Global South" responsible for upholding certain standards, both in terms of development policies and climate change mitigation systems, which if not contradictory are unrealistic and lead to extreme economic debts for these "developing nations" (Westholm & Arora-Jonsson, 2015). Current gender scholarship is therefore questioning the last 30 years of global climate politics and carbon trading schemes from the starting point of planetary boundaries, equity, climate justice, and just transition (Arora-Jonsson et al., 2023). It is for this reason that most recent gender studies' engagement with the question of climate change by necessity has merged with politics of degrowth—not least focusing on bringing down emissions from the polluter elites (Hopkins et al., 2023; Koch et al., 2024; MacGregor, 2019). For example, in this issue, Eeva Houtbeckers' essay, "The Political Economy of Ecofeminist Degrowth," explores ecofeminist developments as a field of knowledge and their critiques towards the capitalist growth agenda. While mapping this political economy of ecofeminism, Eeva identifies the contemporary themes in ecofeminist degrowth by analyzing Ariel Salleh and Stefania Barca's writings. The author argues that "it is important to highlight ecofeminist thinking so that current degrowth debates do not ignore the institutionalized exploitation of women, minorities, and other species in economic activity" (Houtbeckers, this issue).

Whiteness, masculinity, and climate catastrophe

Modern industrial fossil-fueled societies are founded on and structured by a worldview in which humans have considered themselves to stand above nature with a boundless right to dominate, control, and exploit it. For half a century, ecofeminists have called for more research focusing on male norms, positionalities, practices, and power (for an overview, read MacGregor and Seymor, 2017). Various branches of ecofeminism since the mid-1970s have revealed that men (if a binary categorization is used), or specific groups of men, have solidified, sustained, and benefited most from heteropatriarchy by way of strategies such as objectification of nature, hierarchization between males and

females, and separation between body and mind, as well as segregation of bodies that are marked differently. Despite this rich scholarship, focused research on these gendered enactments connected to matters of nature remained sparse until the early 2010s (Hultman, 2013, 2021). During the late 2010s and early 2020s, a few reviews of the field have been carried out (Hyldig & Faber, 2024; Paulson & Boose, 2019; Yates, 2022), as well as theoretical development (Hultman & Pulé, 2018; Pulé & Hultman, 2021). Today we recognize studies on masculinities at the intersection of gender studies and climate research and below we present three such configurations of masculinities as representing these developments in scholarship: (1) industrial/breadwinner, (2) ecomodern, and (3) ecological, as proposed by Martin Hultman (2017; see also Hultman & Pulé, 2018, Pulé & Hultman 2021).

Industrial/breadwinner masculinities are configurations that are built on the historical gendered notions of masculinity and gendered division of labor situated in the Global North and connected to the notion of hegemonic whiteness. As such, industrial/breadwinner masculinities anchor themselves in fossil fuel-related ways of living and infrastructuring societies that intentionally oppose effective climate action, as shown by research on climate denial organizations (Anshelm & Hultman, 2014; Vowles, & Hultman, 2021). Such configurations of masculinities are revived and reproduced by climate obstructionist think tanks (Moreno-Soldevila, 2022; Pasek, 2021), fossil fuel companies and their workers (Allen, 2021; Letourneau & Davidson, 2022; Letourneau et al., 2023), the polluter elites (Hopkins et al., 2023), as well as, ideologically, part of the far right (Barla & Bjork-James, 2021; Kaul & Buchanan, 2023; Vowles & Hultman, 2021). Industrial/breadwinner masculinities are not least straightforwardly formulated as petro-masculinity by Cara Daggett (2018). All the above are on display in Katrien Van der Heyden's essay in this special issue, in which she connects the misogynistic harassment against the youth movement Fridays For Futures with the climate denial of industrial/breadwinner masculinities.

Ecomodern masculinities are another research strand that has emerged in between critical masculinities studies and climate research. Ecomodern masculinities are associated with those greenwashed industrial/breadwinner masculinities that may pose as solutions to our dire climate situation, but are more or less simply conserving business-as-ecocidal-usual. Critical research that addresses ecomodern masculinities includes, but is not limited to, the rise of biofuels (Dockstader & Bell, 2020), identity politics of satirical 21st-century American cultural artifacts (Heiliger, 2021), changes in the values and practices of Arnold Schwarzenegger (Hultman, 2021), commercials for men's underwear (Allan, 2021), climbing culture (Salovaara, 2020), historical gendering of nuclear power (Wågström, 2021), techno-solutionism (Kendrick & Nagel, 2020; McIvor, 2024), as well as revealing perhaps the scariest configuration of ecomodern masculinity today, which is the white supremacy of Tesla's Elon Musk (Vivi & Hermans, 2022).

Last, but not least, are ecological masculinities. In connection to studies of masculinities, there has been a proliferation of scholarship that engages in posthumanism, affective, and prefigurative politics. This is a way of exploring the openings long provided by ecofeminisms and suggests enacting masculinities that stay within the planetary boundaries in an ecologically recognized way, as Judith Butler emphasizes in the interview part of this special issue. It is the mode of organizing and re-creating social relationships that strive to imagine the future society we need. Such prefigurative ecological masculinities have been elaborated on in connection to, for example, ideas of commoning care (Dengler & Lang, 2022), veganism (Aavik, 2021), degrowth subjectivities (Eversberg & Schmelzer, 2023; Khanna, 2021; Paulson, 2024), comics on climate activism (Nordenstam & Wictorin, 2023), and pedagogy (Hedenqvist et al., 2021; Kennedy & Russell, 2021; Twine, 2024). In this special issue the calls for reconfiguring the human relationality with our various companion species are many and illustrative. Lykke describes the possibilities of recognizing our geological history, thereby making ourselves more humble and caring. Ida Bencke, Linda Lapiņa, Anne-Sophie Bogetoft Mortensen, and Christa Holm Vogelius

discuss how encounters with water within and outside of our porous thin skin make us aware of all the material interconnectedness and flows we are to deal with.

The above strands of masculinities research are elaborated on in new critical, experimental, and empirically dense case studies when analyzing the Mythopoetic Men's Movement (Pulé & Hultman, 2019), far-right ecologies (Darwish, 2021), rural masculinities in Nicaragua (Gonda, 2021), organic slaughterhouses (Rutt & Tjørring, 2024), and fossil fuel capitalism (Allen, 2022). The years that have gone by since the special issue on Gendering Climate Change (2009) have seen the proliferation of critical as well as prefigurative studies of masculinities, providing the field with another set of opportunities for change.

From technoscapes to posthuman care

As mentioned, the concepts and terminologies that are used to describe and analyze climate change-related issues in academia, among politicians, as well as by company leaders, are predominantly based on technical-scientific and economic framing, which, as Sandra Harding (1995) observed almost 20 years ago, follows a form of weak objectivity. That is, the idea that technical-scientific knowledge is objective and neutral, devoid of and separate from social, cultural, and political processes, and as Donna Haraway (1988) asserts, independent of its local and embodied arrangements (playing the God-Trick, as Haraway terms it). Feminist cultural studies scholars as well as feminist STS scholars have been reflecting in particular on how accounts of nature are not innocent and are often entangled with sexism, racism, ableism, and heteronormativity (Alaimo, 2017; Bryld & Lykke, 2000; Haraway, 2013b; Lykke, 2013). But what does a critical engagement with technoscience within the context of climate change mean, especially in the era of post-truth and anti-climate discourse, when we need to be aware that certain forms of technoscience critique (when done bluntly, cynically, or shallowly) may have the opposite of the desired effect? Let us provide some examples.

The concept of ecosystem services serves as a good example of when critique is productive. It was first developed by the ecologist Gretchen C. Daily in an edited volume titled *Nature's Services: Societal Dependence on Natural Systems* in 1997, to draw attention to and to underscore the value and dire consequences of the overreaching practices of humanity on ecosystems (Daily, 1997). In recent years, the concept of ecosystem services has become widely used as a discourse and framework for market-driven solutions to climate change problems, such as the financial practices of carbon credit trading and carbon offsetting (Liu, 2024). It produces an economic framework that reduces to an economic valuation the multi-scaled and multi-layered industrial regulations and relations, materialities, and temporalities of energy infrastructures and resources, relations of embodied labor, and practices of production, consumption, and waste (Haraway et al., 2016). Another example of when technoscience poses as objective, but is rather in need of critique, is the consensus reached at the G8 summit in 2009 marking a 2°C rise in global temperature as an "acceptable" threshold, signposting a manageable level of danger to the planet (Seager, 2009). This was an ecological threshold for climate policy change that was suggested by economist William Nordhaus, or as Seager phrases it, the "economic man," not an environmental scientist (Seager, 2009, p. 13). It is a threshold that has been "modelling acceptable danger" for climate risk, landing "somewhere between 'likely to be quite bad' and 'likely to be really catastrophic'" (Seager, 2009, p. 14). Such narratives of risk, calculation, and scientifically produced and measurable calculations often lead to both big and small political decisions being taken, though they often lack critical engagement with or reflections on technoscience as sociotechnical assemblages.

Other such important entanglements of science and technology with sociopolitical aspects in need of critical analysis are: funding and collaborations between academia and military organizations and the global war industry (e.g. Braidotti,

2013; Bryld & Lykke, 2000; Haraway, 2013a; Wind, 2024); ecology and taxonomy in relation to whiteness, ableism, and heteronormativity (Subramaniam, 2014; see also Mortimer-Sandilands & Erickson, 2010; Szczygielska, 2017; Seymour, 2020); and sustainability of new technological solutions such as digitalization (e.g. D'ignazio & Klein, 2023; Kuntsman, 2020). These scholarships encourage researchers of science and technology to be more attentive to questions such as who is producing certain knowledge about what? What methods and methodologies are used and how do such choices situate the outcome in certain ways? How are certain projects funded, and by whom? What kind of new challenges and problems do technoscientific artifacts bring with them? In short, how do science, technology, society, and nature co-produce one another in constantly shifting assemblages that are not merely scientific? This is not a post-truth claim that aims at undoing facts or disregarding scientific knowledge about nature, ecologies, or environmental issues. This is not climate change denial, but to bring attention to why we produce, value, and advocate certain knowledge and methods when discussing climate change mitigation in politics, academia, as well as everyday life. It is more important than ever that we continue doing this, and at the same time doing it in such a way that the critique cannot be used to reject knowledge about the climate catastrophe in the making (Ekberg et al., 2022). Researchers at the intersection of gender studies and climate research carry out such critical engagements in various ways, two of which we would like to expand on here: (1) critical engagement with techno-solutionism; and (2) posthuman care: staying in the company of land, water, and multi-species connections.

Techno-solutionism is often referred to as a process in which a social problem is turned into a technical or engineering problem in need of a techno-fix (see, e.g., Sætra & Selinger, 2023). An example, as Sætra and Selinger (2023) mention, within the context of climate change, is mitigation of greenhouse gas from cars, which is seen not only as a matter of engineering, design, or finding the "right" fuel, but also concerns social norms of public transportation. It is a sociotechnical matter that according to Röhr (2009) is extremely gendered, connected to matters of public space, family responsibilities, driving habits, mobility, and more. In connection with climate change this has a very long history, and its ideological format has been named ecomodernism (Hultman & Anshelm, 2017). One example of ecomodern techno-solutionism is hydrogen (Hultman & Nordlund, 2013), another is carbon capture and storage (Hansson, 2012), and a third is geoengineering (Fleming, 2021)—all gendered. Many gender researchers have reflected on the problem of techno-solutionism as attending to the symptom at best, rather than solving the roots of the climate change issues, which needs social and radical infrastructural changes. More recent such techno-solutionist tropes include, for example, digital solutions for sustainability, which are criticized for underplaying the environmental effects of digitalization (e.g. Certomà et al., 2024; Kuntsman, 2020). Feminist scholars have long been criticizing the often military-funded origins of such techno-solutionist approaches and their masculine colonial modes of knowledge production, to which we have referred many times in this review. However, another line of critique to which feminist scholars have been contributing is analysis of narratives and practices of restoration and preservation. For example, genetic modification or restoration of vanishing (environmental/existing species) DNA, as well as the DNA of "vanishing people," has become central over the last 10 years (see, e.g., M'charek, 2005; Shen et al., 2023), while others reflect on matters of epigenetics and the entanglement of genes and environmental matters and social practices connected to gender and more (e.g. Packer, 2022). For example, in this special issue, Anne Nørkjær Bang and Charlotte Halmø Kroløkke analyze the core idea of the SpaceX company's project of colonizing Mars (by Elon Musk), namely the figuration of a multiplanetary human species, and how in such imaginaries the long-lasting modernist, colonial, and masculine ideas and dichotomies between human and non-human are reproduced. It is for this reason that the authors of this article, titled "Being among the Stars: Et feministisk-posthumanistisk perspektiv på det

multiplanetære menneske," urge the importance of moving away from such human-centric understandings of nature, earth, as well as humanness through a feminist posthuman lens, which brings us to the next signpost.

Many feminist STS scholars, as well as cultural studies feminists, have been suggesting that a posthuman approach to climate change and climate care might be what we need if we are ever to depart from colonial capitalist masculine extractivism. The main argument is that we need to reimagine the human subject not as something outside and above nature but situated and becoming with it (Åsberg & Mehrabi, 2016; Haraway et al., 2016; Hultman & Pulé, 2018; Lykke, 2013). In this view, which is strongly inspired by Indigenous cosmologies, nature is not something passive or merely a resource for humans to use, but it is agential, something whose agency is performative of us humans and the world we live in. Two emerging lines of thinking within posthuman and Indigenous feminist research during the past decade have been thinking with and through water and land (see, e.g., Alaimo, 2013; Lykke, 2019), acknowledging Rights of Nature (Hultman, 2024). For example, through theoretical concepts such as hydrofeminism, hydrocommons, and hydro-logic, scholars such as Astrida Neimanis argue for an "aqueous understanding" of bodies and communities that are connected through water yet are exposed to water vulnerabilities differently (2017; see also Mehrabi & Straube, forthcoming).

Contributing to this body of scholarship, our contributors to this special issue also think with land, water, and multispecies care. For example, in the discussion essay "The (Im-)Possibilities and (Dis-)Comforts of Watery We's: Exploring Entanglement, Mothering and Solidarity within Hydrofeminism(s)," Ida Bencke, Linda Lapiņa, Anne-Sophie Bogetoft Mortensen, and Christa Holm Vogelius reflectively discuss hydrofeminism and its potentials and limits for feminist theorizing. They ask who is "we," an often used pronoun, within the field of hydrofeminism that aims to highlight transpecies watery connection. As they engage with such discourses, they deconstruct the notion of "we," through figuration of motherhood, queer embodiment, and racial politics. Nina Lykke, in her article in this special issue, invites the reader to rethink politics of land, water, and nature through a more-than-human perspective, that of a cliff, formed by the micro-algae, diatoms, 55 million years ago, in the Danish fjords. In her article, the cliff "performs as the protagonist of a folktale-inspired story about the coming into being of Denmark through series of ecocides," calling attention to the entanglement of human, non-human, and nature. Malou Juelskjær, through the figuration of Earth, asks how one can care about, for, and with earth (both in terms of the planet Earth but also precarious lands and situated places). Their article thinks with an association called Skovgro, which redevelops agricultural lands, especially places where the health of bodies of water is threatened. Thinking with these practices of rewilding of lands and water provides food for thought about multispecies co-existence and flourishing. The next step for more-than-human engagements seems to be happening as we speak, with scholarship experimenting with and making visible practices of new ecohabitat co-living.

Affective registers, feminist aesthetics, and writing with climate change

In addition to its epistemological dimensions, feminist researchers attend to the aesthetics of climate and environment issues, asking how and why certain aesthetic registers become mobilized for racialized and gendered environmental politics (see, e.g., Seymour, 2020). For example, cuteness as an environmental aesthetic has been used for affirmative ecological reimagination and also recruited to justify oppressive and exploitative logics undergirding (green) capitalism and ecofascist discourses (Liu, forthcoming). To illustrate, in a study on the ecofascist Moomin cartoons, Maria Darwish (2024) shows how fascist employment of cartoon characters uses cuteness to hierarchically oppose the compassionate fascist masculinist nationalist protectors against their racialized others, who are

portrayed as cruel to animals. Feminist approaches to epistemology and aesthetics of climate and environmental problems further extend the analysis of gender beyond the critique of whether and how gender differences and perspectives are included. Instead, and importantly, they demonstrate that the historical and emerging ways of knowing and feeling climate are conditioned upon the epistemological frameworks and affective aesthetic registers that are themselves gendered and gendering (see, e.g., Alaimo, 2013; Lykke, 2021; Lykke et al., 2024; Straube, 2024; 2019).

The utilization and analysis of the aesthetics of climate crises are central to the essay "How Dare You: Et udstillingseksperiment om køn, kamp og klimakrise" By Cecil Marie Schou Pallesen and Signe Uldbjerg from KØN – Gender Museum Denmark (in this issue). The essay explores the format of a specific museum exhibition and its potential for creating a historical and object-oriented awareness towards the materiality and sensuality of gendered consumer culture and environmental activism. The artwork depicted on the front page of this special issue stems from the exhibition and carries some of the aesthetic and material stories of climate change: specifically, stories of the mass production of waste in modern textile industries, as well as the counter-cultures and histories of preindustrial and manual labour and production, its romanticization and its connections to unequal and exploitative labour conditions.

To be able to tackle such gendered and gendering affective registers, feminists suggest adopting an alternative genre of writing that is sensitive to how knowledge is produced, where, by, and for whom, and the aesthetic registers such narratives evoke and mobilize hold the potential for transforming debates about gender and climate change. In this special issue, many contributors deploy other genres to allow for more just and equitable modes of knowing, sensing, and imagining climate. Instead of simply justifying or arguing for the relevance of gender for climate, these contributions effectively and forcefully demonstrate and rework the intersectionally gendered dynamics that make climate change sensible and intelligible.

In the article "Listening to the Ancestral Wisdom of Diatomite Cliffs: Rethinking Danish History in Times of Climate Catastrophe," Nina Lykke employs the genre of speculative fiction, which serves to defamiliarize the anthropocentric and modern instrumentalist lens that frames the issues of environmental and climate change. "The (Im-)possibilities and (Dis-)Comforts of Watery We's: Exploring Entanglement, Mothering and Solidarity within Hydrofeminism(s)" utilizes conversation as a form of writing, which makes visible the differences and negotiations, including "clashes and (dis)comforts" that speak of inequalities, embodied differences, and multiple positionalities that are internal to the collective knowledge production processes of hydrofeminisms. In "Misogyny against Climate Justice Activists," Katrien Van der Heyden employs the narrative style of autobiographical writing to give an account of the misogynistic harassment that her non-binary child and her family experienced as climate activists. Importantly, this personal account performs a form of solidarity that invites the reader to not only witness but to connect to, stand with and for, and in so doing participate in, practices of care that radically challenge the paternalistic and misogynistic logic of care. The authors of these texts explicitly reflect and explain how and why they opt for these specific modes of writing, reflections that generate a sense of intimacy of speaking with. That is, a call to arms that encourages the reader to participate in the collective rewriting and reimagining of climate.

Conclusion

"There must be a counter-imagination to resist the fear, authoritarian regimes stoke and demand. This means envisioning a way of living together based on equality and freedom. We should not fear each other's freedom—your freedom does not take away from mine. It is also crucial to forge alliances among feminists, LGBTQ+ communities, and those fighting for migrant rights. We believe this must be connected to the healing of the Earth. We need to ask ourselves, more broadly than just

in terms of gender, what kind of world we want to live in. And how do we live in that world together? One essential element of the response is to not contribute further to the exclusion or subordination of others, and certainly not to further violence or discrimination. We must be more conscious of how interconnected we are as living beings and find political and social methods of organizing that recognize and value our shared entanglement, our interdependent lives." (Butler, this issue)

So far we have been articulating why we think climate change is a feminist issue *today*, especially when one commits to underscoring the importance of the histories and continued feminist reflection and discussions on gender. What are the specific affordances of feminist analytical approaches and political and ethical orientations for engaging with climate change beyond the field of gender studies and outside academic research?

To address these questions, in this review, we turn once again to the question of gender through the lens of epistemology, aesthetics, politics, ethics, and methodologies through the lens of feminist technoscience studies. We outlined the changing understanding of gender in feminist engagement with climate change. For example, and to recapitulate, we identified a shift, although far from linear or final, from a tendency to essentialize women's relation to and participation in environmental practices, especially within the context of development discourses, to intersectional and decolonial approaches that make visible and challenge the elision of gender in the framing of climate change as predominantly an economic and science-technological concern. Lastly, we discussed the importance of attending to affects, emotions, and creative modes of writing as a potential scape for reimagining climate matters responsibly.

Moreover, we explained that separation between gender as social questions concerning identity, and climate change as a natural, scientific, economic, and technological problem also informs certain anti-gender, anti-climate discourses often connected to modes of masculinities, such as industrial/breadwinner, ecomodern, and ecological masculinities. In the context of austerity measures and changing forms of authoritarian neoliberalism, work on gender equality is seen by critics, who might not otherwise be involved in far-right and anti-gender movements, as a distraction that takes resources from, and hence hinders, measures against climate breakdown. For example, in this special issue, in an interview with Judith Butler, Dorthe Staunæs and Cecilie Nørgaard discuss their recent book, *Who Is Afraid of Gender?* (in this issue), revisiting the importance of concepts such as gender, equality, diversity, and knowledge in an American context where such concepts are continuously cited in different contexts. They ask, "Does gender on the public agenda mean more freedom?" and would it lead to decolonizing relations of power and promote more sustainable ways of living, especially in the presence of anti-gender ideologies and fear of the Other (migrants, trans community, climate)? In a world in which gender is "structural" and "plastic," how can we move beyond affective rhetorics of "wokeness," fear, and concern for the nation, family, and tradition? As cited in the quote above, how can we "find political and social methods of organizing that recognize and value our shared entanglement, our interdependent lives?"

To summarize, critical reflections and debates within gender studies collectively demonstrate the various ways in which gender is central to the understanding of climate change as "an epochal crisis" (Fraser, 2021), affecting environmental, economic, social, and political relations. And yet, academic and public discussions outside the scholarly field of gender studies still routinely posit gender in essentialist and binary terms, and as questions of social equality that are distinct and less urgent than climate change questions; a message that this special issue with all its contributions deconstructs, opposes, and urges readers to move beyond.

Acknowledgement

We would like to thank our colleague Annika Jonsson for her insightful comments and discussions about gender and climate change, especially on the issue of joy and meaningfulness.

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Notes

1 It is argued that this concept was first coined within Earth sciences by Paul Cortzen in 2000 and then used by the historian John McNeil in 2001 (see Hird & Yusoff, 2016; Steffen, 2021).
2 See https://www.worldweatherattribution.org/.
3 A planetary boundary threat is when major chemical changes happen to the environment with three distinct characteristics: when Earth's vitality and ecosystems are threatened by unknown disruptors; when such devastating effects are not discovered until it becomes a global struggle; and when it is clear that the effects are not immediately reversible (Villarrubia-Gómez et al., 2018).
4 Grassroots activism such as that by the Fridays For Future network of climate strikers launched by Greta Thunberg, the Waorani people fighting for the Amazon against oil extraction, the Anishinaabe Indigenous clean water advocates from Wikwemikong First Nation Manitoulin Island in Ontario, Canada, the Persatuan Tindakan Alam Sekitar Kuala Langat (Kuala Langat Environmental Action Group) in Malaysia who protest against the import of plastic waste, or the Sámi community in Sweden fighting for the well-being of their lands, provides examples of resistance, resilience, care, and response-able co-habitation.