

LETTER

Next steps in dismantling discrimination: Lessons from ecology and conservation science

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Abstract

Ecology, conservation, and other scientific disciplines have histories built on the oppression of marginalized groups of people. Modern day discrimination continues in these fields and there is renewed interest in dismantling these system of oppression. In this paper, we offer some examples of historical events which have shaped the field and argue that reckoning with colonial histories is part of the process to dismantle discrimination and achieve equity and inclusion. We discuss ways forward including incorporating different knowledge systems and reflecting on one's own biases and privilege. To truly achieve fields of science which are just, diverse, and equitable will be one of our greatest challenges, but one that is necessary to protect our environment, an endeavor which cannot be detangled from societal injustices.

KEYWORDS

anti-oppression, diversity, equity, racism

Issues surrounding sexism, racism, and other forms of systemic discrimination within scientific institutions have become increasingly highlighted in public and institutional dialogue in recent years. The lack of representation of women, Black, Indigenous and people of color, people living with disabilities, LGBTQ2S folks, and other groups adversely affected by historical and ongoing white supremacy and heteropatriarchy due to systemic barriers and bias is increasingly recognized (National Science Foundation, 2017). Conversations about dismantling discrimination in ecology and conservation sciences, as in most scientific disciplines, have been largely lacking and those which have happened tend to primarily focus on increasing female representation. Importantly, these conversations have been divorced from the long-documented history of the natural sciences' complicity to colonialism

and capitalist expansion (Becker, 2017; Brockway, 1979; Cooper, 2011; Dennis, 1995; Saini, 2018).

It is no secret that Black and Brown bodies in North America and elsewhere have systemic barriers to connecting with the natural world itself, even outside the domain of academia. In the spring of 2020, Christian Cooper, a Black birdwatcher in Central Park, New York, recently recorded the instance in which a White woman called the police on him and lied about feeling threatened in the presence of a Black man when he simply requested that she leash her dog as per park rules. This particular situation brings into confluence two ongoing phenomena that highlight the fraught ways in which people of color, especially Black and Indigenous people, must navigate their daily lives. First, it brings into attention the way that whiteness and simply the presentation of white vulnerability can

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be weaponized to oust people of color from areas that are deemed white spaces (Anderson, 2015). Second, it shows the way in which due to legacies of colonialism, “the outdoors” have been codified as “white spaces,” where the presence of people of color automatically are interpreted as a threat to White lives (Finney, 2014; Mills, 2014). As such, instances like Christian Cooper’s experience, at the site of yet another infamous case of racial profiling Black people being portrayed as nefarious simply for being in a “white space” (i.e., Central Park Five case; Duru, 2003), highlight how systemic racism and colonial states seek to disenfranchise Black and Indigenous peoples from their relationships with the natural world itself. This particular instance, along with the deaths of Black and Indigenous peoples by or during interactions with the police, highlight that even simple actions like taking a walk can be dangerous for Black, Indigenous, and other people of color. The recent amplification of these events via social media has sparked the #Strike4BlackLives, #ShutdownSTEM, #BlackBirdersWeek, and other online actions seeking to draw attention to this violence and to provide ways forward (e.g., Sealey et al., 2020). Many academic societies, universities, departments, and environmental organizations released statements in support of the Black Lives Matter movement and commitments to dismantling systems of oppression within their institutions.

As women of color navigating academic careers in the scientific and related fields, we seek to better understand systems of oppression in order to increase equity and inclusion for our students and colleagues. Examining the history and present challenges in the field of conservation provide insight and a way forward in a world which seems to be increasingly more hostile to equity-seeking groups. Conservationists as a group need to contend with their role in actively maintaining a system which rewards privilege and contains multiple barriers for access and full participation by marginalized communities. Developing mechanisms to root out white supremacy and colonial mindsets will question the very foundations of the field and will be among the most challenging and pressing tasks we will face in coming years.

In order to understand the contemporary context of ecology and conservation, it is imperative that we look to history. Scientists must confront the longstanding association of Western science and Enlightenment movements—commonly linked with building the framework for academia and ideas of rationality—to colonialism and racism (Bouie, 2018). Failure to do so and hold ourselves accountable shields us from our own implicit assumptions that perpetuate modes of inequity currently plaguing the sciences. Fortunately, the literature on this continues to expand. Conservationists can look to anthropologist, sociologist, geographer, health studies, and his-

torian colleagues who are contending with their own imperialist baggage for potential frameworks to address these issues (e.g., Castleden, Morgan, & Neimanis, 2010; Cochran et al., 2008). It is no longer sufficient to relegate our understanding of diversity matters exclusively to university policy. As astrophysicist Chanda Prescod-Weinstein has shown us, diversity and inclusion initiatives by themselves are an insufficient response to the root problem of white supremacy (Prescod-Weinstein, 2018). While diversity and inclusion initiatives may appear successful in recruiting more Black, Indigenous, and people of color into any particular space, they do not resolve the fundamental discriminatory structures that already exist in most academic settings, nor do they address white supremacy in individuals who hold power in such contexts—which in turn creates a hostile working environment for people of diverse backgrounds. Instead, ecologists and conservationists must expand their understanding based on the history of the discipline and the ways in which knowledge is produced and begin the process of rooting out white supremacy from epistemologies and methodologies (e.g., Ban et al., 2018). In fact, one of the most celebrated works in the field, *The Origin of Species* by Charles Darwin, was produced as a consequence of the imperialistic ambitions of Britain and is a testament to ideas in the ecological sciences expanding alongside colonialism. Carl Linnaeus also laid the groundwork for scientific racism by creating a pseudoscientific taxonomy of human races based on Eurocentric values that provided later justification for the treatment of non-Europeans as inferior (Müller-Wille, 2014). Similar sentiments were echoed by Georges Cuvier, a French naturalist (Isaac, 2006; Kidd, 2006). Pioneering ecologists Charles Darwin, Karl Vogt, and Ernst Haeckel variously contributed to this line of thinking, intentionally or otherwise, and upgraded it with evolutionary explanations of racial differences (Jackson & Weidman, 2004; Kistner, 1999; Richards, 2007; Rose, 2009). Indeed, some of this knowledge has been actively used by white nationalist and ethnocentric movements across time, from Nazi craniometry to contemporary white supremacy movements (Graves Jr., 2003; R. Weikart, 2006; Richard Weikart, 2013; Richards, 2013). It is imperative and a moral duty for contemporary ecologists to speak out about the misapplication and misinterpretation of ecological theory and research. We must recognize who among us benefits from oft-unrecognized labor and how we continue to propagate systemic bias.

Much of conservation is related to and informs land use and wildlife management, for example, sustainable forestry, fishery management, and at-risk species protection. Colonial worldviews proliferate within these areas (Salomon et al., 2018) and examining past practices may lead to insights. Colonial networks of scientific

knowledge are particularly of note in the development of professional forestry (Vandergeest & Peluso, 2006a, 2006b). Forestry was imported into colonial Asia by various European empires. However, the use of European forestry techniques in colonial South and Southeast Asia were far from the dominant management system—they were indeed adapted to local ecologies and existing customs for optimum results in the establishment of political forests. Political forests, as in those under formal governance, further laid the groundwork for political authority of areas that were otherwise inaccessible to colonial forms of government. Political forests acted as centers for resource extraction for colonial governments, which expanded their power into territories that were otherwise more difficult to put under direct control, and enabled the exploitation of local traditional ecological knowledge for the services of empire. While the networks of forestry were intrinsically associated with the networks of empire, they also had the opportunity to develop independently from strictly imperial agendas (Vandergeest & Peluso, 2006b). Ecology as a field, however, had become a potent tool for geopolitical control for both colonial and postcolonial governments from this era onwards (Barton & Bennett, 2010). This trend continues to this day, often under the guises of bioprospecting, conservation, and others, where colonial networks set in place centuries ago are used to enact sociopolitical and intellectual dominance over many areas, often those in the global south (Brookfield, 1992; Heald, 2003; Mgbeoji, 2006; Nelson, 2003; Shiva, 2007; South, 2007).

Today when discrimination is highlighted in academia, the focus is usually sexism (e.g., sexual harassment, gender bias, women in STEM; Clancy, Nelson, Rutherford, & Hinde, 2014) and it is almost always considered without historical context. While racism is occasionally mentioned, classism, ableism, queerphobia, Islamophobia, anti-Semitism, and other forms of discrimination are even more rarely acknowledged. In order to fully create an inclusive culture in these fields, it is imperative that actions are intersectional at their core. Intersectionality as a concept is expansive and complex, and has often eluded a singular definition. In short, it can be described as the praxis that considers socially constructed traits (e.g., race, gender, sexuality, class, education), does not exist in isolation from each other but rather are interconnected and influence each other in sometimes overt and at other times insidious ways (Crenshaw, 1989; Collins, 2015). For instance, while affirmative action has been official policy across many institutions, it has been shown that it is often most beneficial to White women (Massie, 2016), as the current interpretations of affirmative action do not take into account intersectionality, nor do they take into consideration the implications of critical race theory which tell us how power operates within public systems to uphold

white supremacy. As such, in order to fully understand the historical systems of discrimination in place for individuals, we must consider all the different aspects of an individual's identity and focusing on just one can uphold oppression in other ways (e.g., Jonsson, 2016). Just as environmental components like climate and resource availability impact how a gene may express itself in an organism, aspects such as race, gender, sexuality, and others may also influence the dynamics of power that an individual or group may experience in the world. We encourage ecologists and conservationists to consider intersectionality as not just an abstract ideology, but as a methodology to eliminate as many sources of bias as possible, and to reduce error. We contend that intersectionality is a better approximation at objectivity for scientists, because it is an attempt to consider all sides of a situation. Although objectivity was encouraged as foundational in the practice of science, foundational Enlightenment thought generated a discriminatory paradigm that ultimately has failed to produce objectivity—from how we conduct our research to how we interact with our colleagues to how inclusive our research institutions are. Instead, understanding and considering intersectionality could facilitate objectivity by supporting a polyphony of voices in our field.

In 2017, there were two examples published in the highly respected journal *Nature* which highlight how entrenched oppression is in the life sciences. The first was an editorial about J. Marion Sims' monument and his value of his research to his discipline. The editorial downplayed the horrific crimes committed by Sims to enslaved Black women and overlooked their diminished capacity to consent to experimentation, and thereby reinforced the notion that marginalized people are of lower value in scientific disciplines, and that they are often the ones whose well-being must be sacrificed for scientific progress. The second was a study which selected a non-representative group of editors to compile a list of 100 important papers in ecology that young ecologists were encouraged to read. The list was highly skewed towards publications written or lead by White, male authors. In both cases, the problematic content of the articles was only recognized after the papers were published and available for review by a wider audience. The biases became more obvious through the significant labor invested in the submitted responses and subsequent discussions but by then the damage had been done. Given all the shortcomings of the science on contemporary issues, it is no surprise that it fails routinely to recognize discrimination and bias or to own up to its history of oppression.

The inability of scientific institutions to recognize these issues early on is the result of ignorance and inertia in place that enable them to continue to do their work uninterrupted while replicating old colonial models of scientific

practice as usual both within academia and where fieldwork is conducted. Privilege is one of the many concepts which play into discrimination in scientific disciplines but is studied and well-understood by anti-oppression scholars and not often examined in the life sciences. Ecologists and conservationists need to become familiar with anti-oppression language and consider the role language has perpetuating discrimination. For example, the use of English as the primary language of our field limits the ability of non-English speakers to communicate information and get credit via publishing and citations. This often results in ecological research missing the voices of Indigenous and other local communities and ignoring, often with impunity, other knowledge systems and culturally-situated ways of knowing (e.g., McCarter et al., 2018; Polfus et al., 2016; Salomon et al., 2018). While methods for ensuring representative sampling and including marginalized voices are well-defined in the social sciences, ecologists rarely consider this and often there is lack of ethics approvals for ecological research involving human participants, including vulnerable communities. More subtle and nuanced is the use of language which continues to “other” or discriminate marginalized groups. For example, words like “tolerance” (i.e., of people with different ethnicities and religions), “unconscious bias,” and “civilized” uphold white supremacy in ways which are implicit. These terms can imply superiority, highlight someone is different from the “norm” and perpetuate a lack of accountability which moves us away from inclusivity, despite good intentions. There are also ways of orienting to fieldwork, that are not talked about as often as part of science education and research—that colonial ways of being and knowing can be perpetuated in the ways that scientists may practice occupying space, land and resources at their field sites (e.g., my field site, my results). Anti-oppression training taught by qualified individuals can help researchers address these multiple factors to help work more equitably with local environments and populations in a field site, especially ones that exist under settler colonial or post-colonial contexts. Reflexivity or positionality statements can also help scientists recognize privilege and reflect on individual work needed to be done (Baker, Eichhorn, & Griffiths, 2019). Incorporating these into job applications, elections for society board positions and other positions of power within the field could help instill a culture of reflection critical to dismantling systems of oppression.

While discrimination can be due to internalized racism and lack of awareness, there are additional structures in academia and ecology which actively exclude and harm vulnerable groups. For example, field research is difficult to access for people living with disabilities and/or those of marginalized socio-economic status, but is often required to secure graduate school positions. Students of

lower socio-economic status have less ability to volunteer to gain experience which puts them at a disadvantage compared to students with more resources (Fournier & Bond 2015). The frequency of sexual harassment and racism in fieldwork has also been documented (Clancy et al., 2014) making fieldwork difficult to continue without appropriate support (Demery & Pipkin 2020). Universities continue to use student evaluations in tenure and promotion policies, despite clear evidence showing bias against women and people of color which impacts their professional development (e.g., Huston, 2006). These few examples show where problems are well-known and solutions available are not prioritized, thus maintaining the status quo. For these cases, codes of conduct, diversity committees and equity initiatives require clear actionable items with set targets and allocated resources. The processes should be informed by research and lived experience.

Evidence of discrimination and bias in academia has been well documented, but recognizing and naming bias is not enough to remove it. In contrast, the constant onslaught of examples of discrimination without movement towards solutions may lead to impacts on mental health and additional losses of diverse researchers with high potential. For example, tokenizing can add to the administrative burden or service requirements of marginalized groups and can result in the overall decrease in diversity (e.g., through cultural taxation (Joseph & Hirschfield 2011)).

Truly dismantling oppression in conservation will be uncomfortable work. It requires us to acknowledge our complicity, whether it be active or passive and reflect on the barriers in place in all current metrics of success. We will need to examine the compositions of research teams, symposia, panel speakers, committees, conference attendees, editorial boards, co-authors, and so forth and determine where representation is lacking. However, simply increasing diversity without taking apart the active structures in white supremacy is not a sustainable solution to dismantling oppression. Truly establishing equity and reducing bias will require a transfer of resources and support to marginalized individuals at various intersections. It means ensuring those in equity-seeking groups are being amplified, heard, acclimated, properly credited for their ideas and work. Scientists will have to learn to value different types of contributions, including those of Indigenous knowledge holders. We will have to center voices which are not our own, speak up instead of placing more burden on vulnerable groups and transfer over power and resources (e.g., Wong, Ballegooyen, Ignace, Johnson, & Swanson, 2020). The difficult tasks of unpacking privilege and removing barriers will result in many mistakes along the way. When this happens, we must avoid becoming defensive, centering our feelings or explaining our good

intentions. We will have to acknowledge the impact of our actions, sit with the discomfort, apologize, and resolve to do better. It will be a challenging task ahead but the future of our field rests on our ability to provide more diverse, inclusive, and equitable spaces. It is essential to not simply pay lip service or to be co-opted by neoliberal and capitalist structures of the university. Instead, we must create and implement robust structural reforms targeting the root of white supremacy in our knowledge production practices.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Both authors conceived of the manuscript idea. AC lead the writing of the manuscript, SRC contributed to the writing and final editing.

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