**Research Statement**

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**Introduction**

Academic publishing processes and standards are formed by historic dispossession, marginality, and colonialism. My research will ask researchers and students to criticize the basis of scientific knowledge itself, and therefore research informing wildlife management and policy.I am interested in studying the connection between publishing culture and environmental knowledge. Specifically, I want to quantify how a lack of inclusivity and barriers to publishing negatively affects environmental knowledge by perpetuating specific worldviews and creating gaps in knowledge. A gap also exists in current literature, with direct effects on environmental knowledge yet to be quantified. Mott & Cockayne (2017) mention the biases of citation metrics, and many other studies acknowledge the existence of racial and gender biases in publishing culture (Davies et al. 2021, Hopkins et al. 2013). Morrison & Steltzer (2021) identify a lack of social diversity in ecology that leads to an inevitable lack of intellectual diversity, but intellectual diversity and its effects on the environment today are not fully understood, which leads me down my current research path. Quantifying intellectual diversity and its effects on conservation research and practices will be complex, but it would be a next step beyond acknowledging that so many barriers and biases exist.

**Background**  
 Intellectual diversity incorporates ontological (beliefs about reality), epistemic (beliefs about knowledge), and axiological (values) differences. These differences are difficult to quantify, but intellectual diversity can be equated to social diversity, which highlights how important it is to allow for social diversity in the academic world (Morrison & Steltzer 2021). Social diversity allows for a diversity in approaches to research and global issues. However, in addition to getting published more often, white men are also cited more often in academic literature (Davies et al. 2021, Morrison & Steltzer 2021, Mott & Cockayne 2017, Hopkins et al. 2013). Citations are impactful for numerous reasons: metrics such as number of citations, impact factors and h-indices can be determining factors in hiring decisions, tenure, research funding, and presumed authority in a field (Davies et al. 2021, Kumar & Karusala 2021, Mott & Cockayne 2017). This prioritization of white, male researchers perpetuates sexism and racism in the academic community. Citations create the basis for knowledge itself, and therefore ideas, worldviews, and values represented in a field (Kumar & Karusala 2021, Mott & Cockayne 2017). Fully acknowledging the citation gap also requires acknowledging an inevitable consequence that some viewpoints and ideas are missing from ecology and current environmental knowledge. There is a large body of research identifying and criticizing the citation gap in academics, but the effect of this phenomena, especially in relation to ecology and the environment, is less understood.  
 A critical lens guiding my research is colonialism and marginality, and I hope to make an impact by using my results to inspire others to think critically and reflect on their own research processes. Science, therefore academic publishing culture, is overwhelmingly English (Ramírez-Castañeda 2020, Siverston 2018, Belcher 2007). Over 98% of all publications are in English, many conferences only allow presentations in English, and most journals don’t even have an option to publish in a different language (Ramírez-Castañeda 2020). According to Ramírez-Castañeda (2020), “Diversity in language promotes diversity in thinking, affecting creative process and imagination; thus, the maintenance of multilingualism in science could have an impact on scientific knowledge in itself” (2). English proficiency is also strong predictor of the likelihood of getting published (Salager-Meyer 2008, Di Bitetti & Ferreras 2017). At the same time, English proficiency also correlates with a country’s economic status and an individual’s socioeconomic status (Ramírez-Castañeda 2020, Salager-Meyer 2008).  
 Another important aspect of studying potential gaps in environmental knowledge is acknowledging the U.S. and richer nations as extremely influential in the volume of research produced. While developing countries comprise ~80% of the world's population, only ~2% of scientific publications come from them (Salager-Meyer 2008). Funding also represents a significant barrier for many researchers, and in the U.S. about 30% of research is publicly funded while 70% of research is privately funded. In developing countries, over 75% of funding comes from the public sector. Another factor that affects the ability to publish research in other countries is a digital gap, which refers to how many countries have a lack of overall access to computers and the internet at home and in a working environment (Belcher 2007, Salager-Meyer 2008). In the U.S., access to the internet, computers, databases, and even electricity are taken for granted.

**Current Research Questions**

1. Does diversity in researcher demographic data connect to the diversity in ontology, epistemology, and axiology?
   1. How do intellectual diversity components (ontology, epistemology, and axiology) for U.S. researchers compare to that of all other countries, given where the majority of research is published?
   2. How do intellectual diversity components for researchers who speak English as a first language compare to that of researchers who speak English as a second language?
2. How can trends in research design (subject, objectives, theories, methodologies) be connected to researcher demographic data?
   1. How does research design for U.S. researchers compare to that of all other countries, given where the majority of research is published?
   2. How does research design for researchers who speak English as a first language compare to that of researchers who speak English as a second language?
3. Can gaps in current ecological and conservation-oriented knowledge be identified based on consistent trends found from the cumulative comparison of intellectual diversity (Q1), research design (Q2), and demographic data?

**Methods** I see a study with these goals including a systemic review that collects a large number of ecology and conservation-oriented studies and using text mining and topic modelling to collect data about an author’s research design: subject of study, goals, theories, and methodologies. Studies would be collected based on a string of keywords, like ‘conservation’ and ‘ecology.’ I also want to include keywords that aim to include a diversity of species, in order to avoid limiting my results to just terrestrial species studies. I plan to use Web of Science (WoS) to collect records of articles because their platform tracks author citations, abstracts, physical address, email addresses, and other useful information.   
 The results of the systemic review will be connected to the results of a survey sent to the first author (by email) of collected articles, which would collect demographic information (similar to Hopkins et al. 2013) and ask questions aiming to study a researcher’s epistemology (beliefs about knowledge), ontology (beliefs about reality), and axiology (values). The survey would also ask individuals if they had personal stories connected to academic publishing they would be willing to share with me. Hearing these personal accounts would be influential in learning about new barriers to publishing I did not discover in my literature review, as well as gaining more personal insight on those I’ve already identified. Citation metrics can easily be found using Web of Science or Google Scholar to add to existing literature about demographics and citation biases, but my main goal in this study is to connect social diversity and intellectual diversity.  
 Since white male researchers are published most often, I’m expecting this demographic to be sampled most. Additionally, most researchers will be based in the United States and Europe. It may be appropriate to also send surveys to authors of conservation-oriented articles found through databases dedicated to research published outside of the United States (such as [SciELO](https://scielo.org/en/) or [AJOL](https://www.ajol.info/index.php/ajol)) and campaigns/organizations dedicated to lifting the voices of researchers from minority communities ([500 Women Scientists](https://500womenscientists.org/) or [Cite Black Women](https://www.citeblackwomencollective.org/)) in order to include as many diverse perspectives as possible.  
 Recognizing my own privileged position in the academic world, I want to also conduct interviews with other researchers to guide my proposal. Ideally, this will include researchers with experiences like publishing in English as a second language, experience with barriers to publishing, or experiences as an editor. As I finalize my proposal, these interviews would help add to my current understanding of the issue, realize any adjustments that could be made to my research questions or design, and learn about current perceptions of the publishing system different than my own.

**Conclusion** At the root of my intended research is acknowledging that these racial and gender biases exist, and there are a lot of systemic issues to address in the academic publishing sphere that I won’t be able to study sufficiently in one study. My goal is not to repeat or supply data to prove the problem exists, but to connect social diversity and intellectual diversity to highlight inevitable gaps in our current knowledge base. Another goal of my work will be to provide students and other researchers resources that push them to think about the power dynamics in academic publishing, whose worldviews and ideas get perpetuated as they cite and publish research, and the barriers to other researchers because of a worldwide publishing system influenced by colonialism and knowledge capitalism.

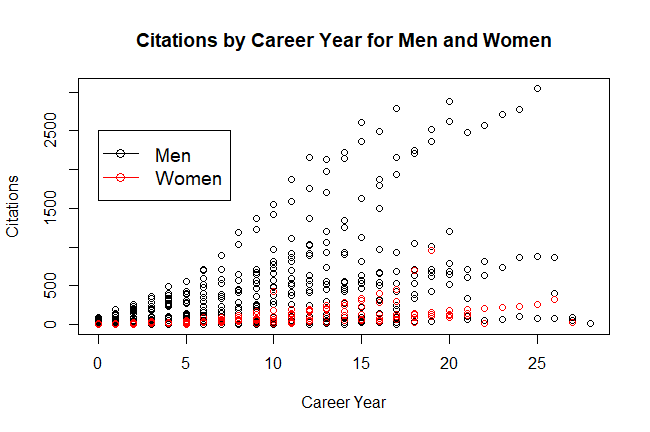


Figure 1: Within the College of Forestry and Conservation (CFC) at the University of Montana, gender bias alone clearly affects our faculty members and their research. Figure 1 is a compilation of CFC faculty with Google Scholar profiles. The average h-index (a research output measure based on number of publications and citations) for men was 35.87 and 20 for women.

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