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Whose stories are being told?

Reframing the Narratives

behind Conservation in

Higher Education

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ABSTRACT

While conservation has been responsible for the preservation of some of the world's most precious resources (such as through the creation of protected areas), it has also continued legacies of settler-colonialism and has attempted the cultural erasure of Indigenous ways of knowing, being, and doing. Since its inception, conservation has been responsible for the perpetuation of inequitable and oppressive practices. The research for this project seeks to reimagine and reframe conservation through a lens of social justice. Specifically, we sought to understand student reactions to course content when exposed to social justice topics in conservation. The data in this study was collected in the form of three incrementally assigned reflections over the semester. This data was taken through the process of collaborative coding and analyzed to identify patterns within the student reflections. We have developed codes and potential themes for the data. We found that students exhibit a strong, shocked, emotional response to hearing of the hidden realities of America's capitalistic, patriarchal, and colonial system. Resources that have been critical to this learning are videos, podcasts, and tiktoks in addition to reading or hearing personal experiences. Through the reflections, we see that students have already begun to disclose that their reality and position within conservation make more sense after learning about the hidden truths of conservation science.

Introduction

Conservation education is defined as the process of impacting one's attitude, behavior, and knowledge toward the natural environment (izea, 2023). This definition has maintained its rigor for generations, containing methods that have been adopted by many settler-colonial scientists. However, this definition of conservation education is a one-sided approach. One that has been tainted with settler colonial (a social structure that exists to dismantle and displace indigenous peoples and culture for the purpose of implementing a new settler-based society) (Kashwan, 2021) influence and has timelessly neglected the intersectional realities of marginalized communities (social, racial, or ethnic groups that are deemed as insignificant), forced displacement, and Indigenous knowledge systems (Rudd, 2021 & Fernández-Llamazares, 2021). The ECOL 592 class was designed to expose students to the intersectional topics of environmental justice, conservation history, and socioecological models and case studies.

As such, my research aims to understand which tools and resources have benefited students and the various ways students' responses have altered after being exposed to intersectional content, during their time in ECOL 592- Interdisciplinary Seminar in Ecology (graduate course). My primary mentor for this research was Ph.D. student Erin Weingarten. Her colleagues, graduate student Tamara Layden, and Dr. Sarah Bombaci, all of whom are acquainted with the Fish, Wildlife, and Conservation Biology department at CSU, were also instructors of the graduate course. Before my research began much work was done by my mentors to create an educational course that was designed to unveil the harmful and racist realities of settler-colonial conservation

to students whom themselves are looking to progress into careers in conservation. During the spring and summer of 2022, collective work was done between my stakeholders to develop a curriculum that centered the stories and realities of marginalized identities within conservation practice. When looking at education specifically, it is imperative to note the approach to education that is being taken in this study, as different pedagogies were utilized in the production of this course. One foundational one is critical pedagogy, which exists as a philosophy of education that applies concepts from critical theory and allows the integration of social and cultural contexts and studies. These pedagogies are the methods or studies of teaching and their influence on learners. The course was developed with the intent of adaptability and collective feedback from both faculty and students.

For this study, the classroom environment was the site of all data collection. Provided that this study encompassed the theme of conservation, it was important to target the demographic that has had the most exposure to knowledge of the natural world. These graduate students have been exposed to several methods of conservational practice that have reflected settler colonial ideologies. This background to conservation has allowed us to better understand where the discourse begins and how it has been disguised (Dawson, 2021). Throughout this research you will encounter varying positionalities, these are known as the social, political, and economic factors that drive each of our individual perceptions, biases, and overall identities (Schulser, 2021). I have even included my own positionality statement to provide grounding for this research. As my peers and I recognize that there are several approaches to integrating inclusive knowledge and history within conservation education and justice, and do not seek to prove one method over another. Rather we hope to define how these different strategies have or have not influenced the attitudes and perceptions of students (Cronin, 2021). The adaptability of the course made for quick changes and transitions that would accommodate to students' feedback as the course progressed throughout the 2022 fall semester. These changes were documented and outlined in our qualitative analysis of the data.

Overall, I am looking to understand two questions, what tools/resources are most effective in generating a meaningful course surrounding conservation and justice? And how have students and faculty alike altered their positionalities since their exposure to the course? Where I believe students and faculty will have had greater benefit in implementing more firsthand accounts of experiences with environmental justice and conservation concepts. Having been exposed to in-depth readings and documentaries that encapsulate the lived experiences of various marginalized communities. Simultaneously I feel students and faculty may leave the course with more questions than they had previously, removing the barrier of discourse and presenting students and faculty with the tools to better understand where their roles lie in conservational practice and knowledge.

Affiliations

All affiliates are associated with the Warner College of Natural Resources @ Colorado State University

Erin Weingarten— Mentor/ECOL 592 Instructor; Fish, Wildlife, & Conservation Biology Department, Graduate Degree Program in Ecology, Funded by National Science Foundation

Alex Lage —Research Partner; Ecosystem Sciences & Sustainability

Our mentor developed this graduate course (ECOL 592- Interdisciplinary Seminar in Ecology) with their team beginning in the Spring of 2022 and continuing into the summer of 2022, where it was introduced and implemented all of 2022. 10-15 key papers (outlined in mentor’s Ph.D. proposal) were used as a guide for thinking about the structure of the course. Most of the course was outlined, however, it was designed in a way that would allow it to be flexible. Taking surveys throughout the course to receive immediate feedback on the content and structure. Erin W., Tamara L., and Dr. Sarah B. spearheaded this course.

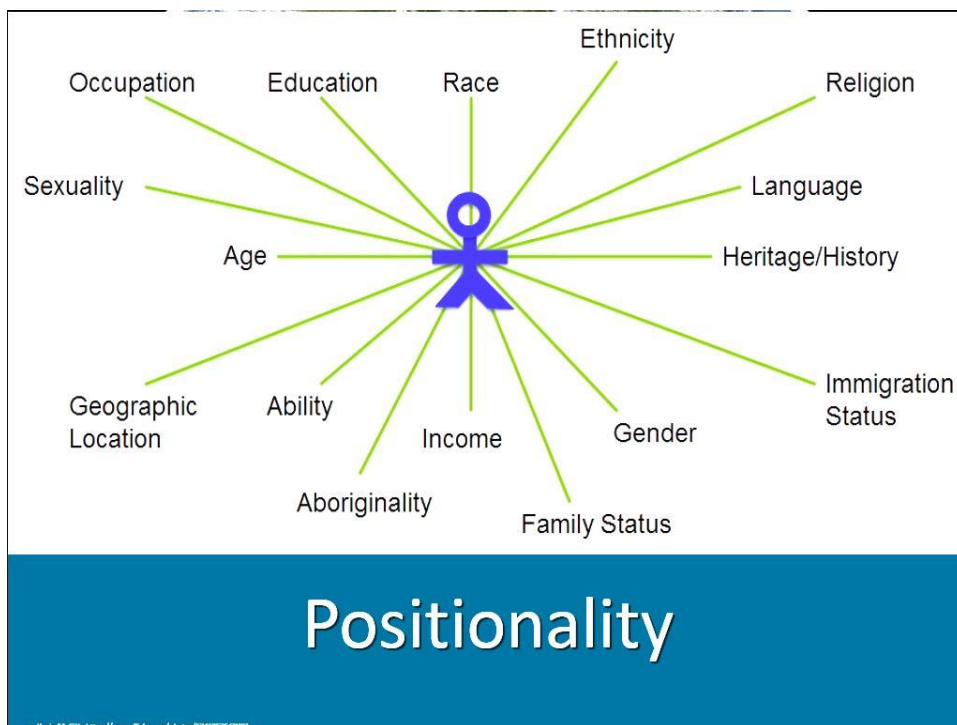


Figure 1. This image represents the components that make up a single person’s positionality. There are various identities and experiences that we all hold, and each of them is connected to the other, making us who we are. (Gould, 2015)

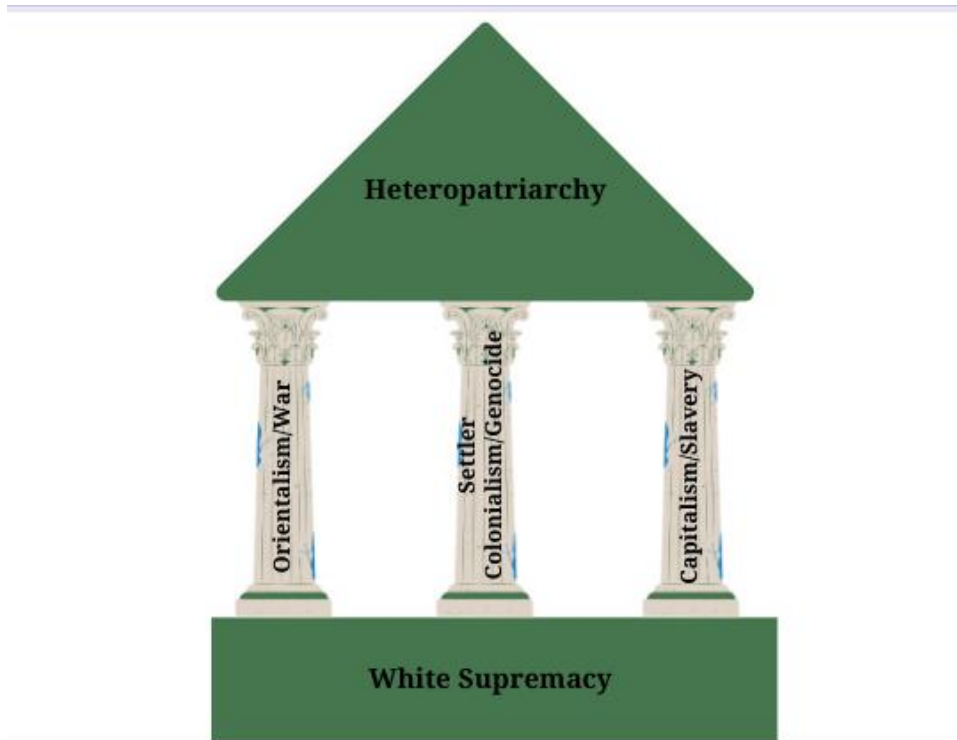


Figure 2. This image describes the pillars that make up historical white supremacy in our society. These pillars are defined as orientalism, settler colonialism, and capitalism/slavery followed by the roofing component of heteropatriarchy. (Schneider, 2022)

Research questions

- A) What tools/resources are most effective in generating a meaningful course surrounding conservation and justice?
- B) How have students initially responded to the course (values, beliefs, attitudes, etc.)?

Expected outcome, or research (alternative) hypothesis:

- A) We will find that students and faculty had greater benefit in implementing more firsthand accounts of experiences with environmental justice and conservation concepts. Exposing them to in-depth readings and documentaries that encapsulate the lived experiences of various marginalized communities. Communities that tend to get overlooked or neglected are being broadcast directly into their learning, being layered into the concepts of conservation that they have already been predisposed to.
- B) Students and faculty may leave the course with more questions than they had when they entered, this exemplifies the ability for these students to challenge their own personal perceptions of the world around them. More specifically, it will remove the barrier of

discourse and present students and faculty with the tools to better understand where their roles lie, whether that is with themselves or in their respective fields.

Emergent null hypothesis:

- A) Tools/resources like the course of conservation that already exist are the most effective methods of teaching about conservation and justice, nothing needs to be altered in course content

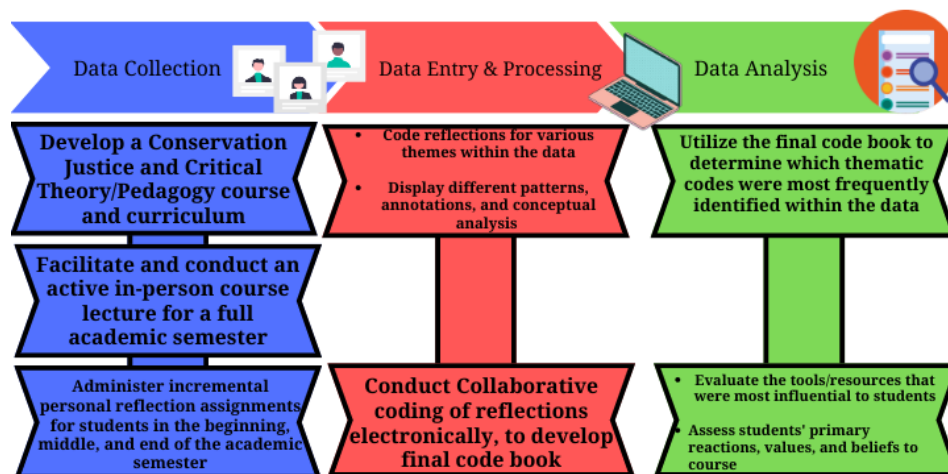
- B) Students and faculty have left this course feeling the same as they walked in, there was no significant change to their perceptions of conservation and justice within the world.

Explanation:

- A) We see that the more exposure students and faculty have to difficult concepts the more intrigued they become in the why and how. They seek a greater understanding of the world around them as well as a sort of unveiling to the ideas they have been shielded from due to historic components of white supremacy and colonial practices that have been engrained into our discourse of conservation and forms of justice.

- B) Within the initial weeks of the course, discussions in the classroom had already begun to shift. Students were challenging their own perceptions and understandings of conservation; grappling with these complex environmental histories and epistemologies has caused internal questions and emotional turmoil to form. Students are conflicted about how they choose to carry themselves as scientists after this exposure, fearful of perpetuating the same harm as the settler-colonial scientists before them.

Methods Outline Diagram/Description



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Figure 3. Research Methodological Process: Utilizing student course reflections as data to determine what course content is most effective and beneficial to students, while equally assessing how student reactions, and values have changed over time.

Data Collection

Data Collection was completed in the previous Fall 2022 academic semester when the ECOL 592- Interdisciplinary Seminar in Ecology (graduate course), took place. This course was designed by my mentor, Ph.D. student Erin Weingarten. Assisting her in this course development were her colleagues, graduate student Tamara Layden, and Dr. Sarah Bombaci, all of whom are acquainted with the Fish, Wildlife, and Conservation Biology department at CSU. During this course 3 separate reflection assignments were administered during the beginning, middle, and end of the academic semester, this was done to assess the evolution of reactions to different exposures of content.

Data Entry & Processing

Our data entry consists of reading through the various reflections from students and annotating them for their rhetoric, patterns, and overall thoughts of the course. This process took place electronically, as the reflections were assigned to us in increments by our mentor. Collaborative coding meetings between myself, Alex (research partner), and Erin (Project Mentor) were held to identify thematic codes in students' reflections; bringing together our annotations and pulling out the important and overlapping concepts within them. During each of these meetings a master, 'coding agreement', sheet was utilized to track our consistencies and differences within the themes we each identified. We equally developed a 'code book' that maintained a record of the thematic codes we were identifying most frequently, including the descriptions, understandings, and examples of those thematic codes, using it to guide each of our independent coding sessions. This process was then repeated until we made our way through the initial round of reflections, and inevitably developed a more precise and descriptive code book.

Data Analysis

The results received from our collaborative coding process were quite remarkable and will continue to act as the final themes of our research and provide data relating to both impactful course resources and tools. Unveiling the shifts in students' values, thoughts, and experiences during their time in the course. We have pulled out 4 major thematic codes that have displayed both consistency and enlightening rhetoric within students' reflections. These codes are defined as the willingness to learn, the desire to gain tools, the invoking of strong emotions, and the hidden realities that exist in our history. Alongside these thematic codes, we have identified the various tools related to course content that have the most influence on student learning; guest speaker/first-hand accounts, assigned readings (Howard Zinn chapters, Gilio-Whitaker article, etc.), and media (podcast, tik toks, Ted Talks, etc.). Within these tools we were equally able to distinguish further thematic codes as students began to think critically and introspectively about the content they were being exposed to. These presented themselves as growth mindset, a desire for a safe/supportive community, and the understanding of self. With these themes becoming clearer and more extensive, it was important for us to maintain a record of these continuous changes within the students.

Data Interpretation

The data we display in this project is intentionally designed to be qualitative, we were not looking to present the quantitative analysis of these students' learning, but rather broadcast their values, reactions, and feelings towards a newly structured course. This data can be used as both a reference and guide to those looking to implement and interconnect social justice and the environment. An extended effort to promote more ethical scientists and researchers as they are exposed to the emotional impact and challenges of settler colonial histories and practices. It is imperative to note that the questions asked of students in these reflections were designed to be open-ended, allowing students the opportunity to express all thoughts, questions and even frustrations with the course and its content. Prompting students to think about the reasons they chose to take this course and the associated desires and tools they hope to gain.

The data we present here is meant to be received as a foundation for further research and implementation. This project is not the beginning of this conversation of intersectional work, nor should it be the last. We rather wanted to showcase and highlight the ways students' experiences with both them and their passions can be influenced and even expanded as they are exposed to just a semester worth of challenging conservation content. We believe that we owe it to students, who are up-in-coming professionals in their respective fields, to expose them to the good and the bad that comes from conservation's history; providing them the choice to conduct themselves and their research in an ethical and just manner. As our results will further describe, education holds both value and truth, especially in the personal and professional context, and it is only just that it is showcased as such.

Results

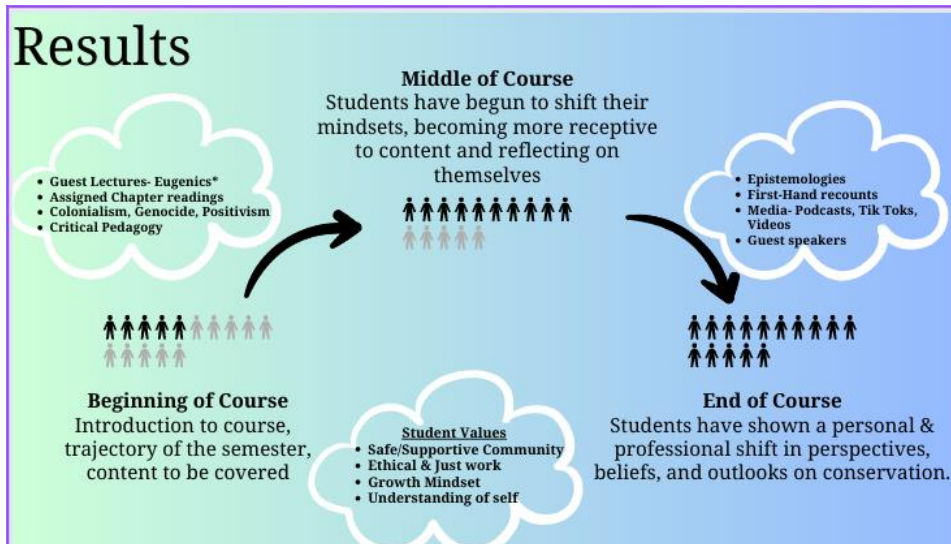


Figure 4. This diagram displays the evolution of students and their exposure to content throughout their time in ECOL 592: Interdisciplinary Seminar, showcasing how students' perceptions and values have changed as they have been exposed to various resources and topics.

Initial Reaction Coding Categories	Personalized Quotes from Students			
1 Willingness to learn	<p>"I would love more examples and workshoping how to bring communities into conservation and thinking about what is 'my lens' in conservation. When should I work on stepping aside and where can center voices that are not from my background?"</p> <p>"I was hoping to gain a broader understanding of how white dominant culture negatively impacts our field, and how to better use my abilities to empower other's ecological needs. I hope this class will make me an open-minded lead research so that I may best serve the communities within which I will soon work."</p> <p>"I am hoping to still gain more perspective and face my own biases in the field of ecology and personal life. I also hope to learn more about what other steps I can take to be more responsible when conducting research or going through life."</p> <p>"I am hoping that I can learn more how to best help move our world and society to a more just and equitable one. I want to learn how to use my privileges to help others in a way that is non-paternal and increases others self-authority and power. Doing this requires so much knowledge, self-awareness, understanding, and a certain tact when you do us, and I am hoping to increase my skills in this area."</p>		Invoking strong emotions	<p>"I think all of these topics have been particularly difficult to discuss. Especially, what has been challenging is thinking of how colonial settlers were met with excess kindness from the indigenous communities with their non-Western ideals and their first thought essentially was to exploit that."</p> <p>"The topic surrounding slavery and the origins of slavery, Howard Zinn, and hearing about the colonization of the Americas that saw the genocide of indigenous groups was hard to process. Although I did learn about this, it is still hard to process and emotionally draining."</p> <p>"Something I've been struggling to process is the relationship between conservation and racism. This class has been challenging a lot of ideas that I had pretty solidly in my head. For example, regarding what objective content looks like, and what issues are most important. I know that I believe conservation is important, but I'm struggling to figure out what working in that field ethically, with a social justice lens, would look like. This has been difficult for me to wrap my head around, and somewhat stressful to think about. I have been finding a little overwhelmed with all the things that I've learned, and how to continue living life while still keeping these issues in mind. I am seeing structural inequalities everywhere and my friends and family are tired of hearing about it."</p> <p>"I think the fact that racism like the genocide and slave trade (reads Howard Zinn), has been most emotionally challenging for me. While I think many of us took this class because we are somewhat aware of historical injustice in America, the small, personal details can be heavy to sit with, particularly when thinking about the generational trauma that still exists today as a result. I also found it difficult to think about the history of eugenics. Specifically, I am not sure how to reconcile the role of many prominent naturalists in that field."</p>
2 Wanting to gain tools	<p>"I'm very interested in research questions surrounding equity and justice in ecology and without understanding the roots of our country and our field, it is difficult to properly tackle these issues."</p> <p>"Ideally I want to gain knowledge and practical skills for approaching conservation work in a relationship-focused manner"</p> <p>"Professionally, I hope to use this course as a stepping stone in bringing these issues into my research and to be able to engage in meaningful and conscious conversations with the communities I work with for a more human-centered approach to wildlife management."</p>	Hidden realities		<p>"I'm very much enjoy content like the Zinn readings and the Gilio-Whitaker article. Those that tell a truer story of colonial/conservation history than American students are typically taught."</p> <p>"When I went to Berlin, I remember being hit by how present WW2 was in town. In the architecture, in the wall still marked by pipes, in the street art... We all learn and saw about WW2, but it was still hard in Berlin."</p> <p>"I was most conflicted about the history of conservation. Although I was already aware that the way we practice nature conservation now has been predominantly defined by affluent white men, I didn't realize some of the leaders that had taken part in that narrative. Specifically, I was unaware of the wrongdoings by Theodore Roosevelt. He has been an icon to me since learning about his history in conservation, so much so that I named my dog, Teddy, after him (and because he looks like a teddy bear). However, I remained intentionally ignorant to the people, culture, and knowledge systems that were cast aside in the process. It has been an internal conversation that creates a lot of turmoil."</p> <p>"I was surprised by the history of eugenics in America and how that inspired the mass genocides of Jews in Germany. I was not aware that to this day, many of the people involved in eugenics are still celebrated today and that organizations supporting them are still in operation."</p> <p>"I have been grateful for the knowledge of understanding how deeply ingrained racism is in my field. I know that it</p>

Figure 5. Portrays the four frequent themes we identified in the students' primary reflections, included with embedded quotes from reflections:

- 1) Willingness to Learn
- 2) Wanting to gain tools
- 3) Invoking of strong emotions
- 4) Hidden Realities

12	Resulting themes of resources/tools	
	Safe/supportive community environment	<p>"I am grateful for the informed and inspiring but light content (videos, ted talks, positive tone). "</p> <p>"In the future, I am hoping to learn more about the roots of problematic ecology, but also champion stories about how there are individuals or groups that are including all voices in conservation management so it is equitable across all or most people."</p> <p>"I've begun to delve into the hidden realities of these stories over the past few years but having a class where these truths are openly discussed and critically analyzed from places of compassion and ethics has really opened my eyes to how terrible humans have and continue to be to one another. And truth be told, this is very hard to come to terms with. That said, the safe and comfortable class environment we have has made processing this much easier."</p>
13	Growth Mindset	<p>"While minimizing harm in my research, I also really want to break away from only using Western ideologies and ways of knowing in my research."</p> <p>"I'm just wrestling with what it will mean to try to disturb the system and actively address and combat injustices and white supremacist culture when it is mostly a product of past and ongoing settler colonialism."</p> <p>"As expected, this class is a personal journey. It's absolutely necessary but not necessarily easy. I wish that when the semester was over, I would have some concrete transformation to show for it. However, I know that this will be an ongoing and iterative process with lots of obstacles and mistakes."</p> <p>"I also am excited to fill in the gaps where I may have missed important information and insights. I don't think that people who are knowledgeable should ever think themselves above coming back to this content. I think there will always be snippets missed and insights gained, especially from discussion with classmates and instructors. So much more is to be gained from interacting with concepts with others and working through problems together."</p>
14	Understanding of self	<p>"It also makes me feel particularly strange to know that in some ways, I am also a colonizer though my ancestors were brought here through the trans-atlantic slave trade. And by living in the United States and being a scientist, I exist within these racist, colonial structures."</p> <p>"I am still struggling with whether a white woman like myself should be doing conservation or natural resource work. This is something I have been wrestling with for a while now (before this class) and have had conversations with others about. I feel confident that I can do good work, but the insecurity and doubt has been creeping back in. And I imagine this will endure for my lifetime, for as long as I'm doing this kind work. And I am hopeful that it does in some way (hopefully a healthier way) because I don't want to become complacent with how I am presenting myself and interacting in this space."</p> <p>"I decided to take this course to become more educated about the creation/ perpetuation of social constructs that shape our world. I hope this knowledge helps me continue to understand my position in society."</p> <p>"Learning a more truthful history has allowed me to think more critically about my current reality and confront my biases and investments in oppressive systems (i.e. attending a land grant institution, and working for the National Park Service)."</p>
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Figure 6. Highlights the three final themes we discovered in the students' primary reflections, including quotes from reflections, after their exposure to course content and extensive resources:

- 1) Safe/Supportive community environment
- 2) Growth Mindset
- 3) Understanding of self

Discussion

Primary Reactions/Beliefs/Attitudes

1. *Willingness to learn*

In our findings of this thematic code, it was necessary to define what a 'willingness to learn' truly looks like in the context of our project. We found that a willingness to learn is driven by the adaptability, curiosity, and overall motivation of students, this meant that we were looking for data that demonstrated eagerness, enthusiasm, and a desire for skills or knowledge. This in turn allowed us to gain further insights into the components that drive students to be more open and receptive to new forms of conservation content.

Many students expressed the importance of learning and understanding the histories of conservation, as well as the racial & social justice issues that have been consistently overlooked or downplayed.

“I am hoping that I can learn more about how to best help move our world and society to a more just and equitable one. I want to learn how to use my privileges to help others in a way that is constructive and increases others' self-authority and power. Doing this requires so much knowledge, self-awareness, understanding, and a certain tact when you do so, and I am hoping to increase my skills in this area.”

Where some students desired a more general willingness to learn in a broader context, others were eager to learn how to personally carry themselves throughout their lives and their work.

“I am hoping to still gain more perspective and face my own biases in the field of ecology and personal life. I also hope to learn more about what other steps I can take to be more responsible when conducting research or going through life.”

2. Wanting to gain tools

In this thematic code we found that students in most cases were looking to halt the perpetuation of harmful social and scientific practices. To do so however, required different resources and tools that would equip students with the skills needed to prevent this cycle from occurring. We looked for student reflections that emphasized wanting a greater understanding of new methods and perspectives within the field of conservation, while simultaneously seeking comfort with the content for both personal and professional development.

“I'm very interested in research questions surrounding equity and justice in ecology and without understanding the roots of our country and our field, it is difficult to properly tackle these issues.”

“Professionally, I hope to use this course as a steppingstone in bringing these issues into my research and to be able to engage in meaningful and conscious conversations with the communities I work with for a more human-centered approach to wildlife management.”

3. Invoking of strong emotions

Invoking strong emotions was a consistent theme throughout our analysis, a good portion of the content covered in the seminar is heavy in nature. The content can be difficult to digest and comprehend, leading students to feel overwhelmed, angry, fearful, or even sad. We chose to focus this theme on the exploration of the ways students communicate and express these emotions, investigating the origin and intensity of their emotional responses.

“Something I’ve been struggling to process is the relationship between conservation and racism. This class has been challenging a lot of ideas that I had pretty solidly in my head, for example, regarding what objective science looks like, and what issues are most important. I know that I believe conservation is important, but I’m struggling to figure out what working in that field ethically, with a social justice lens, would look like. This has been difficult for me to wrap my head around, and somewhat stressful to think about. I have been feeling a little overwhelmed with all the things that I’ve learned, and how to continue living life while still keeping these issues in mind. I am seeing structural inequalities everywhere and my friends and family are tired of hearing about it.”

The patterns we identified in this thematic code were frequent and abundantly apparent. During many of our collaborative coding meetings we were more commonly in agreement about when and where we were seeing these patterns in the data than we disagreed. We were able to increasingly see the ways content was contributing to these emotional responses and the direct impact it was having on students personal and social beliefs.

“I think the texts that describe the genocide and slave trade (mostly Howard Zinn), has been most emotionally challenging for me. While I think many of us took this class because we are somewhat aware of historical injustice in America, the small, personal details can be heavy to sit with, particularly when thinking about the generational trauma that still exists today as a result. I also found it difficult to think about the history of eugenics. Specifically, I am not sure how to reconcile the role of many prominent naturalists in that field.”

4. Hidden Realities/Deception

The ‘hidden realities’ we describe in this research stem from the capitalistic, patriarchal, and colonial system that bleeds into our societal ways of life. When addressing this code, we had to remain careful of the external biases, self-interests, and personal connections that were attached to the deceptions students were uncovering in the lectures, readings, videos, even from each other. We were able to identify the relationships and behaviors of mislead trust that came from these hidden realities, throughout students’ time in the course.

Some of these realities were less hidden than others, we saw this as some students reflected on their experiences even outside of the United States.

“When I went to Berlin, I remember being hit by how present WW2 was in town: in the architecture, in the wall still marked by poles, in the street art... We all learn and care about WW2, but it was still living in Berlin.”

Provided the depth and power of the statements we coded, I felt it was important to highlight some of the reactions to these hidden realities that deployed me and my research team to stop and listen to what the students had to say-

“I was most conflicted about the history of conservation. Although I was already aware that the way we practice fortress conservation now has been predominantly defined by affluent white men, I didn’t realize some of the leaders that had taken part in that narrative. Specifically, I was unaware of the wrongdoings by Theodore Roosevelt. He has been an icon to me since learning about his history in conservation, so much so that I named my dog, Teddy, after him (and because he looks like a teddy bear). However, I remained intentionally ignorant to the peoples, cultures, and knowledge systems that were cast aside in the process. It has been an internal conversation that creates a lot of turmoil.”

“I was surprised by the history of eugenics in America and how that inspired the mass genocides of Jews in Germany. I was not aware that to this day, many of the people involved in eugenics are still celebrated today and that organizations supporting them are still in operation.”

“I have been grateful for the knowledge of understanding how deeply ingrained racism is in my field. I knew that it was bad where a lot of people who are renowned in the field have had problematic ideas and ideology, but I didn’t realize to what depth that traces of these ideas and ideologies still exist in classrooms that are taught to this very day.”

As aforementioned, proper education is imperative not only in our youth but in our lifetimes. It is difficult to be exposed to new truths, to be told that your beliefs are wrong or have been skewed to fit a particular way of thinking and knowing. That is why it is important to note whose stories are told. What value is being associated with them? And how we, as a society, can learn to center those stories and truths.

Resource/Tool Themes

7	Resource Themes	
	Guest speakers/First-hand accounts	<p>"Beth's lecture on eugenics was one of the greatest presentations I have heard while at CSU."</p> <p>"Beth's lecture really hit me. I really liked it and learned new things that I had never heard before. It made me finally recognize the intentionality of how racism and erasing differences happened. Before, I think I recognized that injustices existed, but that they were the unfortunate product of history. The systemic aspect of it was really challenging for me, and still is."</p> <p>"All the content has been great thus far. But the one that sticks out to me was not an assignment, but a video we saw in class. The video was of a group of African American women where they shared their experiences as Black Women in a white dominated culture. It was a great example that highlighted the social injustices faced from different marginalized groups. Their honesty at these experiences captivated me and hearing all those emotional stories moved me. It reminded me of my many identities and various disadvantages that I face, and that others have their own framework. A strong personal reminder to be more compassionate and understanding."</p>
8	Assigned readings	<p>"Thus far, I have for the most part enjoyed the Zinn chapters! Those have been very helpful in contextualizing the history."</p> <p>"I also have really liked the inclusion of the Zinn chapters, since they don't sugar coat anything, and actually tell the gruesome truths of this country."</p> <p>"I very much enjoy content like the Zin readings and the Gillo-Whitaker article- those that tell a truer story of colonial/conservation history than American students are typically taught."</p>
9	Media (TedTalks, podcast, tiktoks)	<p>"I will also say that I have enjoyed the podcasts and tik toks that have been recommended!! think podcasts are one of the best types of media for learning for me!"</p> <p>"I also really liked the TED Talks (We the People, How I learned to stop worrying and love discussing race) and the All my relations podcast."</p> <p>"All that being said, I have loved the alternative ways to engage in this information such as through podcasts, TikToks, and videos."</p> <p>"I am grateful for the podcasts and documents with definition of terms and ones explaining various things such as White supremacy culture list. I am hoping for more podcasts in the future (and TikToks!)"</p> <p>"I'm really grateful for the inclusion on non-text resources in our assignments. I have found the TikToks, Podcasts, and TedTalks really engaging. Beyond watching them, they offer me a chance to follow specific content creators on social media, which will help me continue to engage with the discourses we're covering."</p>
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Figure 7. Demonstrates the resource themes we identified in the students' primary reflections, including quotes from reflections related to the specific course resources they identified:

1. *Guest speakers/First-hand accounts*
2. *Assigned readings*
3. *Media*

Resulting themes of resources/tools

1. *Safe/Supportive community environment*

Students desired a space that made them feel comfortable, welcome, and safe. Many felt that an environment like this was vital to understanding these complex topics.

"I've begun to delve into the hidden realities of these stories over the past few years but having a class where these truths are openly discussed and critically analyzed from places of compassion and ethics has really opened my eyes to how terrible humans have and continue to be to one another. And truth be told, this is very hard to come to terms with. That said, the safe and comfortable class environment we have has made processing this much easier."

Students equally had a desire for a balance of difficult and light content, to help digest some of the topics more effectively, "I am grateful for the informed and inspiring but light content (videos, ted talks, positive tone)."

2. *Growth mindset*

Students overtime began to express a sense of patience with the personal and professional journey of just and ethical conservation work.

“As expected, this class is a personal journey. It’s absolutely necessary but not necessarily easy. I wish that when the semester was over, I would have some concrete transformation to show for it. However, I know that this will be an ongoing and iterative process with lots of obstacles and mistakes.”

“I also am excited to fill in the gaps where I may have missed important information and insights. I don’t think that people who are knowledgeable should ever think themselves above coming back to this content. I think there will always be snippets missed and insights gained, especially from discussion with classmates and instructors. So much more is to be gained from interacting with concepts with others and working through problems together.”

3. Understanding of self

Several students began to think introspectively about their own biases, identities, and roles within the world. Many even questioned their validity in conservation work, feeling as though they are taking up space or not properly conducting or communicating their research.

“It also makes me feel particularly strange to know that in some ways, I am also a colonizer though my ancestors were brought here through the trans-atlantic slave trade. And by living in the United States and being a scientist, I exist within these racist, colonial structures.”

“I am still struggling with whether a white woman like myself should be doing conservation or natural resource work. This is something I have been wrestling with for a while now (before this class) and have had conversations with others about. I feel confident that I can do good work, but the insecurity and doubt has been creeping back in. And I imagine this will endure for my lifetime, for as long as I’m doing this kind work. And I am hopeful that it does in some way (hopefully a healthier way) because I don’t want to become complacent with how I am presenting myself and interacting in this space.”

Conclusion

We have found that the students begin this course with preconceived ideas and biases about how the natural world around them has come to be. There is a settler colonial influence that makes this possible, however in this seminar we took to deeper and more commonly neglected reaches of conservation history to dismantle these biases and demonstrate the harms that have and continue to be perpetuated by them. While equally highlighting the different ways of knowing and understanding the natural world around us in a more ethical, equitable, and sustainable manner. We are still digging through this data to confirm these takeaways.

Exposing students to the realities that lie behind our history, both ecologically and socially, is imperative for their personal and professional growth. These concepts hold generational traumas, dark truths, and unanswered questions. It matters, whose stories are being told in our educational atmospheres; as students further emphasized in their reflections, “In the future, I am hoping to learn more about the roots of problematic ecology, but also champion stories about how there are

individuals or groups that are including all voices in conservation management so it is equitable across all or most people.”. It is our job to make room for these narratives, centering them and the generational knowledge they hold.

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