

Due to the COVID-19 pandemic, my original planned fieldwork restoring the ecological community on a series of field plots on campus was infeasible. Therefore I focused on investigating how to better consolidate research from various disciplines and frameworks to answer the following: why do so few restoration projects 'succeed' according to conventional guidelines, despite decades of intensive research, copious funding, and the immense scale of ecological degradation needing remediation? What crucial insights from disciplines outside of restoration ecology (RE) could be applied to better ensure the success of RE? What does the literature name or hint at being the recurrent, pervasive shortcomings of the standard methodology of RE - and how can these be resolved? A particular focus was given to contrasting these findings with those from urban restoration ecology (URE), as URE was until recently largely ignored by restorationists, despite over half of humanity living in urbanized areas. To answer these questions an intensive literature review was completed, using materials from disciplines including: classic restoration ecology (and those arguing for a new paradigm of RE); invasion, urban, landscape, community, historical, and political ecologies; landscape and urban design; botany; indigenous practices/TEK; permaculture; environmental history; environmental ethics; and many others.

One of the most pertinent overarching themes elucidated was the lack of interdisciplinary communication, and academic-practitioner communication, halting the dissemination of knowledge and relegating research to highly-specific, fragmented, and often unused in the actual practice of restoration. Furthermore, the dominant scientific paradigm of relegating TEK and indigenous land management practices to fringe areas - or ignoring them altogether - is significantly hindering the progress of the field. This is particularly true in the Americas and Oceania where such knowledge and practices, including the active participation of humans in ecosystems to shape the ecological community, were actually the key to maintaining healthy ecosystems. Where Muir once saw lush landscapes, the Western 'hands-off' management (and total removal of humans from conservation areas) approach has largely degraded them to rocky wastelands. The pervasive degradation apparent today across previous indigenous territories was largely initiated by the near extermination of indigenous peoples and their ability to continue land management practices, being further exacerbated by Western means of resource management, agriculture, and industrialization. Relatedly, another popular theme observed was the drastic need to rethink, at a fundamental level, humanity's relationship to the rest of the world - biotic and abiotic alike - especially when dealing with restoration, conservation, and related fields. Ethics, indigenous knowledge, environmental and sociocultural history, and an intense focus on integrating these fields' relevant insights into mainstream RE is crucial for improving the outcomes of this currently largely insular discipline. Trying to heal the environment using the very paradigm/mode of thought that caused its degradation will never serve as a sustainable solution.

Multitudinous physical (biological, chemical, geographical, etc.) barriers also [harm] RE, some of which differ according to the type of ecosystem. Urban RE suffers from practitioners largely ignoring the wide range of physical characteristics formed by the nature of the urban landscape, instead applying one-size-fits-all approaches under the assumption methods used in more rural landscapes transfer over to urbanized areas. Across the world, whether in urban or rural projects, climate change complicates restoration [in almost every conceivable way]. What once thrived in an area may no longer be adapted to specific climactic conditions now present, and even if so, may not in the near future. Whereas references for species selection were traditionally based on historical communities, more often these no longer serve any helpful purpose due to the speed and scale of anthropogenic environmental and climatic change.

During my research, I was able to elucidate dozens of social, cultural, paradigmatic, philosophical, methodological, physical (and many other) barriers and complications to RE's success - too many to list in brief on this abstract - however my master's thesis plans to expand and discuss them. The significant amount of data collected during this internship will allow a more thorough, vigorous, and truly interdisciplinary background moving forward into my master's research, owing to the exceptional variety of material covered and ability to dedicate significant time to these specific topics.