

## **The history and legacy of colonialism in tropical field biology**

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To begin our presentation, we identified a geographic bias in biological field sites (BFS). Most sites are located in the northern hemisphere and are highly concentrated in North America and Europe ([Tydecks et al 2016](#)). Tropical locations are poorly accounted for by BFS; work conducted at tropical BFS accounts for only 10% of all ecological studies (Tydecks et al 2016). Of those sites that are in the tropics, many of them are in former colonies.

We looked at the Americas specifically. According to Tydecks et al (2016), between 1890 and 1960 the number of field sites in the Americas grew rapidly, while regions in Asia and Africa were neglected. To date BFS in these latter two areas are sparse ([Martin 2012](#)).

We presented a brief and simplified history of the Americas from the late 1800s to the mid 1900s to consider why there were so many field sites in the neotropics.

Following the independence of regions in the Caribbean, Central, and South America from European colonizers, the United States became a key trading partner and political ally for many new countries. Scientists profited from growing American political and economic (neocolonial) influence in these areas ([Raby 2017](#)).

Archives show that early American neotropical field sites were often established on or near former plantations or European experimental gardens ([Johnson 1914](#); [Johnson et al 1916](#); [Cahan 1991](#)). Sites would be chosen where there was a pre-existing colonial infrastructure (e.g., the land had already been cleared, buildings were already constructed, the dominant language was English, there were seaports that were already in operation), and where they facilitated back-and-forth travel between the field and research “hubs” (most commonly American universities and/or museums) (Raby 2017).

We then pointed out that colonial and neo-colonial biases are still felt today, as demonstrated by how tropical field biology is both conducted and reported in contemporary literature. We presented the notion of “parachute science,” where scientists, usually from higher-income countries, conduct field work abroad and return home to complete the research, without establishing lasting relationships with local collaborators ([de Vos 2020](#)). This reinforces publication biases and dependencies on expatriate expertise.

In a survey of scientists, [Dahdouh-Guebas et al \(2003\)](#) found that 60-70% of respondents reported intense field-work collaboration with local researchers but did not list their respective institutions as co-authors on resultant publications. Other bibliometric analyses have found that host-nation institutions are often not contacted by expatriate researchers for field collaboration, and that publications based on field work in the developing world are dominated by higher-income countries (e.g., [coral reefs in Indonesia and the Philippines](#), and [geological surveys in African countries](#)).

We then presented a simplified, tiered approach to decolonizing field biology. At the publication level, journals can work towards being anti-colonial by 1. Encouraging authors to provide

inclusion and diversity statements to highlight the various collaborative efforts that went into the article, (e.g., [Cell Press](#)) and 2. Vetting papers by authors that conducted research in another country and did not list any local collaborators, or who seemed to take advantage of local infrastructure without appropriate acknowledgement (e.g., [the Lancet Global Health](#)).

At the level of research methodologies, we noted that there is a growing literature on how to effectively incorporate other means of knowledge acquisition into the dominant Western research paradigm (e.g., [Smith 1999](#)). Further, we presented the findings of a work by [Keikelame and Swartz \(2019\)](#), which discussed how local researchers (here, South African) often felt that there were imbalanced research power dynamics when collaborating with expatriate institutions. Identifying such tensions can allow researchers to prevent these imbalances and form healthier collaborative relationships.

Finally, we wanted to highlight that the majority of biological field sites are administratively linked to universities and colleges (Tydecks et al 2016). To consider what can be done at the level of education, which shapes the next generation of researchers and the kinds of questions that will be investigated, we conducted a quick survey of the field courses offered at [16 Ontario universities](#). Our key findings for the 30 field courses were: 1. The average cost to participate was around \$2000.00 CAD; 2. Course instructors were only from the Ontario university offering the course; 3. Only one course reserved spots for university students at the destination country; 4. No field courses suggested culture/history courses as pre-requisites; 5. No course descriptions referenced colonial histories or existing legacies.

We followed the presentation with an open-ended discussion of possible ways we can be actively anti-colonial at the university-level, and what constructive, decolonial changes can be made to field courses offered here at U of T.

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