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Queering Global Flora: Plant Worlds and the Afterlives of Empire

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Abstract: How have histories of colonialism and their foundational language of gender, race, sexuality, and nation shaped the language, terminology, and theories of the modern plant sciences? How and why do botanical theories remain grounded in the violence of their colonial pasts? In wrestling with these difficult origins, I develop the concept of *migrant ecologies* to retheorize plant migration and reproductive biology. I explore new biological frameworks that harness the power of feminist thought in order to reimagine and reinvigorate our love of plants.

A nation that cannot control its borders is not a nation, Ronald Reagan

Before you ask other people to respect the borders of the West, ask yourself if the West has ever respected anybody else's border.

Suketu Mehta. This Land Is Our Land

Darwin's entangled bank.

Charles Darwin ends *The Origin of Species* with a majestic vision of an entangled bank. In glorious prose he describes a bank clothed with plants, singing birds, flitting insects, and crawling worms on damp earth. He marvels at the elaborately constructed forms, different and diverse yet dependent on each other and governed by the laws of growth, reproduction, inheritance and most importantly variability. He marvels that from such "simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved."

Darwin's legacy is multiple and immense, and also decidedly mixed. Since its publication in 1859, people have both applauded and scorned, cheered and jeered, celebrated and vilified his ideas. Darwin's ideas challenged so much. History chronicles the pushback against the very idea of evolution by natural selection in many dramatic scenes – the famous "Oxford Evolution Debate" of Archbishop Samuel Wilberforce with Darwin's bulldog, Thomas Henry Huxley at

the British Association for the Advancement in Science 1860; the Scopes "Monkey Trial" in 1925 where biology teacher John Scopes was tried for violating a law that made teaching evolution a misdemeanor. The story endures. The Creation Museum opened in Petersberg, Kentucky in 2007, just 40 miles from the Ark Encounter where a life size replica of Noah's Ark narrates the biblical history of life on earth. In the United States, there remains ongoing opposition in some quarters to the compulsory teaching of evolution in schools, and some promote the teaching of intelligent design as an alternate theory of evolution. There have also been moments of humor and parody such as imaginative new religions such as the Church of the Flying Spaghetti Monster. This long and enduring history speaks to how fundamentally Darwinian theory challenged and continues to challenge ideas deeply held in western civilization.

Darwin's work has sparked varied genealogies of thought. It has produced dystopic futures of eugenics, Social Darwinism, scientific racism and public policies that vilify marginalized communities. Such ideas steeped in racism, misogyny and ableism continue to live in contemporary theories and practices of science and medicine. Interestingly, we have also seen a revival of Darwin in a more progressive light. Some feminist and queer scholars have argued that the breadth of his writings have been misunderstood and they have re-read in Darwin's work more radical ideas of sex, gender and sexuality. Others suggest that his views of nature offer a more progressive, affective and nonreductive view of the world. This is what interests me in this piece.

My goal here is not to adjudicate the influence of Darwin. I am not interested in recovering, recuperating, or excusing his decidedly racist and misogynist views. If we refuse a binary view that seems to govern our public discourse, we can see Darwin's work as simultaneously progressive in some aspects and regressive in others. In my work, I am trying to bring biological and feminist thought together. Given the continued centrality of Darwin in our theories of biology, it is worth drawing on a genealogy where visions of an abundant nature luxuriate in interconnected ecological life along his entangled bank. Two aspects of Darwin's ecological thought are useful in offering alternate genealogies to think with. First, despite our hopeful angels then or now, Darwin's theory of 'Evolution by Natural Selection' has never been a linear progress narrative. No organism today is more evolved than any other. All organisms have evolved by adapting to the evolutionary contexts they have found themselves in, as well as

adapt to their ever-changing conditions. Second, Darwin's view of nature and natural selection was always a world where humans were part of nature. Historians have recognized his extensive work with domestic breeding and artificial selection as critical to the development of his theories. Indeed, so much of his observation on his Voyages are about natural worlds teeming with plants, animals as well as humans. Such a view contrasts with one of the key features of European colonial thought that created a disjunction between nature and culture, where a world "out there" was crafted as a monolithic non-human "nature" while only humans held interiority or a soul (albeit not all humans!). This colonial view was and is central for a political economy of maximal resource extraction. It thus rendered the natural as "composed of nonactive materials, either dead or about to be dead, sitting passively out there as a resources for humans to profit from.² It created a disenchanted view of nature and a 'single universe society.' In contrast, Darwin offers an enchanted, entangled view of nature filled with diversity and innovation, a genealogy often forgotten within biology where humans remain outside of nature.

Colonial biology's disenchantment of nature also follows in the cultural realm.

Christianity erased a history of knowledges and practices in the west (such as paganism)⁴ where the non-human worlds held agency and interiority. Today, such views endure in the popular literature of the west largely in children's stories, fables or fantasies.⁵

What European colonialism did within its own lands, it also did to the lands and peoples it colonized. Leanne Simpson summarizes well:

Really what the colonizers have always been trying to figure out is: How do you extract natural resources from the land when the people's whose territory you're on believe that those plant, animal and minerals have both spirit and therefore agency? ... You use gender violence to remove Indigenous peoples and their descendants from the land, you remove agency from the plant and animal worlds and you reposition *aki* (the land) as "natural resources" for the use and betterment of white people.⁶

Land, as Simpson outlines is not an enclosure protected by a border, a natural resource or a commodity. Land in indigenous studies is a space of affective ecologies, relationality, and attachments nurtured over long periods of time. It is this shared idea of affective, fluid and

adaptable ecologies across Darwin's writing as well as feminist, indigenous and queer writings that I want to explore within the theories of plant biogeography.

Part I: Botanical Amnesia: Colonial Hauntings in Biogeography

A disenchanted colonial view of nature has profoundly shaped our theories of biology. This reductionist view of the world has spawned silos of fields such as the natural sciences, social sciences and the humanities, academic fields viewed as distinct from each other, not only in intellectual life but often physically in their geographies on academic campuses. Course distribution requirements in colleges and universities often require students to take at least some courses in each of these broad areas, reinforcing the idea that each offers unique and non-overlapping areas of academic thought. This logic follows into disciplines as well. The biological sciences are further splintered into ever more specialized sub-disciplines that specialize in particular groups (plants, animals, humans, fungi, bacteria, or viruses) or systems (anatomy, physiology, systematics, ecology, evolution etc.) or levels of study (ecosystems, organisms, cells, genes or molecules).

Fields such as feminist Science and Technology Studies (STS) have critiqued the increasing insularity of myopic academic specialization, and instead pushed for a broad interdisciplinarity. It urges us to stop dividing the world into a binary view of nature and culture, and instead engaging with it as entangled naturecultures.⁷ A naturecultural view of the world allows us to see that the history of colonial botany is a story about more than plant worlds—how plants, animals, and colonized humans were used by and for the colonial project. By centering the plant, we see how colonists remade plants in their image, for their needs, consumption, profit, and for empire. What follows is a summary of how we might view the history of plants in the long durée of colonialism. ⁸

Colonialism is fundamentally a story of violence. A teeming, inventive life on earth decimated - cleaved into hierarchies of human and non-human, superior and inferior, master and slave, native and alien. A vital, vibrant planet rendered into desolate landscapes of cracked and crushed earth, an ecological apocalypse of pillaged lands and peoples through slavery and empire.

Within such a history, it is hardly surprising that while nature is consistently gendered feminine (for example, "mother nature"), biology has persistently shaped the workings of nature

as masculine and patriarchal— nature red in tooth and claw. The rise of botany transposed colonial views of binary sex and gender, compulsory heterosexuality, and eurocentrism onto nature. No surprise, then, that there is more scientific work on competition than on cooperation, more on conflict than on coexistence, more on battle between the sexes than on joyful cooperative living. Colonial worldviews still undergird biological thought.

In the afterlives of empire, how do we challenge colonial theories of biology: examine and critique their foundations to re-imagine plant lives anew? Here I want to use a field within plant biogeography, of plant invasion science as a site to explore these questions.

Coloniality of Botany:

Science has transformed the majestic, deep history of plant time into reductionist linear time of botany. Plant time and its affinities with queer time and crip time live uncomfortably with temporalities of scientific modernity. It is this transformation of plant worlds into the field of botany that interests me here. Today, plant worlds are botany. Here I use the case plant biogeography to examine, critique, and reimagine. I do it by queering Botany. Challenging heterosexuality and reproductive (hetero)normativity, queer studies emphasizes the necessity of thinking about sexuality not in terms of bodies or identity but as a field of power. The term queer has grown capacious with time. Queer as a verb is also central as method: to make strange and to question what we know. To think, read, or act queerly is to think across boundaries, beyond the normal and the normative; to explore the spaces deemed marginal, vulnerable, precarious, and perverse; to celebrate, in Angela Willey's words, "queer feminist desires for new modes of conceptualization and new forms of belonging." 10

"Invasion science" emerged as a new subfield in the 1980's, and it has exploded since. By definition, invasive species *must* be foreign. We have seen a resurgence of xenophobic alarm from the political right and left, from environmentalists and non-environmentalists alike - a veritable well-funded industry of bioinvasion: an academic, policy oriented, and activist field. The idea of "invasion biology" is predicated on a binary view of nature "in place" and "out of place." Deeply racialized, invasion biology stokes xenophobic alarm of a world increasingly "out of place." Cultural theorists argue that the hyperbole about alien species is best understood as a cultural panic about changing racial, economic, and gender norms in the nation. The perceived globalization of markets continues to be interpreted by elements of both the right and the left as a

problem of immigration. Thus, immigrants and foreigners, products of the "global" are perceived as one of the key reasons for problems in the "local."

In situating invasion science in the long arc of colonialism, Sylvia Wynter is clarifying. Here, Sylvia Wynter is clarifying. In her genealogical exploration of western thought, she identifies two key representational figures. Man1 or *Homo religiousus* emerging from a "theological order of knowledge of pre-renaissance Latin-Christian Medieval Europe," a figure that then opens up Man2, a bourgeois figure of liberal mono-humanism from the late 19th century, that she calls *homo oeconomicus*. ¹¹ Wynter crystallizes the key figures of colonialism, and how academic disciplines were shaped by the logics of empire. "Race" in her conception is central to western humanism, a foundational anti-blackness we can trace to 1492. The project of colonialism, was the proliferation and naturalization of *homo oeconomicus*. ¹²

Re-narrating invasion biology through the histories of empire and *Homo oeconomicus* reveals a profound and deliberate botanical amnesia. Empire was extractive. Where colonists went, they carried plants, animals, fungi, bacteria, and viruses along. Indeed, there are no natures and cultures, only *naturecultures*. Imperialism, is fundamentally *an ecological project*.¹³ Plants, of course expand their range all the time. But the current global distribution of plants, or global flora, were singularly aided by colonial hubris. In the early modern period, botany was big science and big business, vital to Europe's ambition as a colonial trader. Colonialism, ushered a massive and "grand reshuffling" of global biota, Columbus' "biological bedlam;" it would be accurate to characterize colonial expansion as the original bioinvasion! One can and should understand the installing of the biological sciences as *the* universal, abstract and expert knowledge as a significant legacy in the afterlives of empire.

Thinking invasion biology alongside colonial botany reveals stark colonial, racial logics. During colonial rule there was a *laissez faire* attitude and unlimited mobility across borders. For example, in the late 19th and early 20th centuries, the (USDA) had an active program where they sent biologists as "explorers" to roam the globe for new and interesting plants of economic and aesthetic interest. For example, Dr. David Fairchild, director of USDA's Section of Seed and Plant Introduction from 1898 to 1928, is said to have introduced more than 120K species and varieties into the United States! Likewise, the American Acclimatization Society introduced all of the bird species mentioned in Shakespeare's works to New York City's Central Park in the 1890s. Such an open policy was indeed the norm until late in the 19th century. As Alfred

Crosby argues, the roots of European domination of the western world lie in their creating "New Europes" wherever they went; settler colonists ravaged native populations of humans, plants and animals. Where Europeans went, their agriculture and animals went; they thrived while indigenous ecosystems collapsed. Capitalist logics fueled a global flora: mass export of resources out of the colonies, and growing ravages of the environment through unchecked industrialization and development in newly independent postcolonial nations.

Homo oeconomicus is at the heart of an extractive empire. Colonial nations enacted strict racial border policies to exclude everything foreign - plant and animal quarantine laws developed alongside human exclusion acts. An ultimate act of irony, after centuries of global expansion and ecological decimation, those very colonial nations now insist on preserving the "new Europes" from newer immigrants from Asia, South America, and Africa.

A botanical reckoning means undoing botany's theories of global flora to unravel the coloniality of bio-geography - a profound recognition that frameworks of nature "in and out of place" are political constructions, fossilizing particular evolutionary/ecological moments as "true native nature" for posterity. Biological nostalgia is fundamentally an *un*-ecological project. A true biological reckoning would acknowledge that we are all migrants, dispossessed or dislocated, albeit in very unequal and hierarchical worlds.

Indeed, in the poignant case of settler colonialism, a national rewriting re-imagines the white settlers as the new "natives" and all others as foreign and undesirable. *It is important to understand that the native of invasion biology is not the native of indigenous studies.* I re-narrate this abbreviated history to highlight both the hubris of empire and its subsequent amnesia that together prevent us from a true botanical reckoning with our colonial past. Invasion biology is entirely a naturecultural project of colonial nostalgia and return.

There is no singular, abstract *Anthropos* of Anthropocene, but a sexually, and racially stratified *Anthropos* – where some *Anthropos* colonized, conquered, enslaved, and dehumanized other *anthropos*. Then they returned home with their rich spoils to build fortresses and erect borders and laws to keep and protect their stolen fortunes. They introduce quarantine and immigration laws keeping newer immigrants out. No pristine Eden here, no purity, no corner untouched by colonialism and its afterlives and the rapacious tentacles of modernity. Indeed, rather than pure nations with pure biota, colonialism has created heterogenous landscapes of biogeography, teeming with variation and diversity. And yet botanical amnesia fuels invasion

biology. Biodiversity is good, but only if they are beloved native species.¹⁶ Rather than deploy litmus tests of purity, we should recognize there is no going back. We must contend the impure legacies that empire has left us. How do we do that?

Part II: Colonial Ecologies and the Ethical Impurative

In engaging with colonial histories of the environment, Rob Nixon identifies two distinct strains: postcolonial thought and American ecocriticism.¹⁷ In contrasting the two, he argues that postcolonial theories, from Bhabha to Glissant, foreground hybridity, where cross cultural exchange is constitutive of history. In contrast, American ecocritics emphasize desire for a primordial natural purity in the wilderness. While postcolonial ecocritics focus on diaspora and displacement through colonization and globalization, their American counterparts foreground human continuity and ethics of place and belonging. Postcolonial cosmopolitan and transnational discourses of cities contrast with American centered wilderness narratives. Nixon argues that we must confront the "tension between a postcolonial preoccupation with displacement and an ecocritical preoccupation with an ethics of place" so that we can "draw on the strengths of bioregionalism without succumbing to ecoparochialism." (238).

The last few decades have ushered in vibrant literatures of postcolonial, indigenous, feminist, and queer environmental thought. How do we forge a transnational naturecultural path? As Nixon warns, we should refuse to pit discourses against each other (a divisive colonial move indeed!). Instead, I wish to develop a counter-colonial approach that seeks common ground, unites and synthesizes without collapsing these genealogies into any homogenous entity. They have much in common. All recognize colonial histories of gender, race and nation as central to global environmental devastation. All offer us a way forward with shared visions of a future that highlights respect, ethics and multispecies justice.

Before we move on, a brief note on language. Max Liboiron argues that the term decolonization be reserved for the return of land. Period. Attempts to undo colonial logics are not decolonizing but rather, anti-colonial. Living in a settler colonial United States, I am on board with the focus on the return of land. But as a postcolonial subject of India, I am wary of the anti-colonial since it has been appropriated and subverted by contemporary Hindu nationalists. Therefore, I will use the language of the counter-colonial instead of de- or anti-

colonial. Second, I use the word "we" to mean those engaged with plant worlds and a deep sense of social justice.

As I (and others) have argued, the native/alien distinction is biologically incoherent. Pathologizing foreign species is deeply problematic, stoking xenophobia othering some plants and framing the plant world in troubling geographic binaries.. Invasive species in my view are a symptom of deeper environmental problems: expansive land use that disturbs and degrades habitats, unchecked overdevelopment, poor regulations and management, ineffective economic, trade, and environmental policies. Invasive species discourse is possible because of the amnesia of the biological bedlam that colonialism wrought. To pathologize plants defies history. For example, kudzu was promoted by the USDA to prevent soil erosion, the Asian Carp was brought in as worker fish to clean the Great Lakes, the Asian Long Horned beetle found global reach through poplar crates that transported goods a world hungry for cheap goods from China. To vilify these organisms is to ignore the human hubris and greed that brought us here. Xenophobic rhetoric of invasion mis-directs blame from humans onto plants. It exonerates systems and structures that harm land, extract resources and labor and exploit ecosystems and peoples for short term profit.¹⁹ Invasive species are in fact what Karen Cardozo and I call *invited invasions*. We cannot address our biological present without accurately understanding our biological past. We need to overcome our amnesia.

In sum, our colonial histories have brought visitors into our land, some so long ago that they are now *naturalized*. Others have co-evolved into native ecosystems. What alternate modes do we have to address our naturecultural pasts and futures? Here, scholars such as Nicolas Reo and Laura Ogden are helpful in highlighting the impoverished vocabularies of borders, property, and ownership that undergird settler science. Drawing on indigenous ecologies, they describe how Anishnaabe people plants and indeed all beings, as persons that assemble into nations more so than species. Rather than pathologize organisms as invasive, Anishnaabe teachings regard new plants and animals as part of natural processes resulting from migration by other-than-human nations. Plant movement is not inherently good or bad. According to Anishnaabe teachings, it is the responsibility of humans to determine why the migration has occurred, sometimes with the assistance of animal teachers. Imagine the naturecultural stories kudzu, the Asian Carp, the Asian Longhorn Beetle, purple loosestrife, garlic mustard, or phragmites have to tell! Linking environmental change directly to the introduction of a Euro-American land ethic,

Anishnaabe teachings see "culpability in invasive ideologies rather than in specific animals or plants." Together these framings allow us recognize how much power we cede to the temporal horizons of European colonization as biologists. We can address the colonial histories of botany by discarding settler logics and developing different relations to the land by recognizing its stolen histories. Only in refusing our botanical amnesia and revisiting the hauntings of colonial biogeography might we build more just worlds.

Migrant Ecologies:

I want to propose Migrant ecologies as an antidote to Invasive ecologies. A counter-colonial approach, migrant ecologies offer a practical and pragmatic planetary ecology for the afterlives of colonialism that we find ourselves in. Migrant ecologies do not arise from plant ecological sciences of contemporary biology but rather from naturecultural approaches to plant sciences that address the histories of colonial extractive economies and the grand shuffling of plants, animals and humans during colonial regimes. It arises from the ongoing neocolonial extractive regimes of commerce and trade, unchecked overdevelopment of land, and a refusal to act on urgent signs of hastening climate change. The theorizing of migrant ecologies is both useful and necessary for our moment for many reasons. They:

- Offer a naturecultural approach: Refusing to reduce a plant to its particular individual presence in a particular place, Migrant Ecologies urges us to narrate a naturecultural history of the plant, an understanding of plants through histories of empire. How did it get here? What are its histories? It forces us to narrate stories of plants that precede their "discovery" by a colonist who they are often named after. As it turns out a majority of foreign species are here because of their colonial histories, especially their horticultural appeal. Migrant ecologies offer understandings of plants not only as individual or independent organisms but as imbricated in other ecologies particularly political ecologies of colonialism, globalization and land management.²¹
- Tackle multiple genealogies of colonialism: Migrant ecologies allows us to bring postcolonial, anticolonial, decolonial, countercolonial and indigenous ecologies together. It allows us to narrate how plant afterlives varied depending on their colonial travels.

- Offer embodied affective ecologies: Instead of terms such as global or transnational, migrant ecologies center the plant, animal, human as embodied beings in a naturecultural work. It attempts to capture multispecies and entangled lives within ecologies, economies and histories.
- **Spans species and taxa:** Migrants are defined by the process of migration not by biological taxa. They thus span species and taxa. Migrations is an act that includes various modes such as voluntary, forced and coerced migrations.
- Embrace change and fluidity. It recognizes that evolutionary history is never static.

 Organisms are forever adapting to their environments and change is the norm not the exception. It allows us to embrace Darwin's entangled bank with its plethora of species in complex webs of relationality. Within such frameworks, invasive ecologies that valorize Edenic visions are anathema.
- **Recognize the interdependence** of human diasporas *and* botanical diaspores insisting on relationality, linking migrating communities, and forever binding them to the lands and ancestors they left behind, yet never collapsing the two into some essentialized mythical past.
- **Diaspora/es:** Recognizes that human diaspora and botanical diaspores have the same etymology, the Greek verb *diaspeiro* "to scatter about, or to disperse around." Refusing binaries of native and alien, diasporas insist on relationality, linking migrating communities, and forever binding them to the lands and ancestors they left behind, yet never collapsing the two into some essentialized mythical past. Diasporas also allow for more imaginative sexualities the possibilities of miscegenation and cross fertilization through a politics of assimilation, or of remaining resolutely unique and distinct through a politics of isolation and separatism. Migrant ecologies offer a more capacious framework that capture the diversity of human and plant life.

In short, invasive ecologies are fundamentally unecological and ahistorical, while migrant ecologies are attuned to the histories of botanical colonization where plant worlds continue to be imbricated in the political ecologies of botanical commerce, market forces, horticultural innovations, technologized labor and industrialized agriculture. Climate change has only made the environment more volatile - increasing periods of drought, floods, fire are now routine. Migrant ecologies urge us develop a new lexicon moving away from colonial language of colonizing species, pioneer species and invasive species into language of migration – diasporas,

community, survivors, migrants, and refugees. As we work to reframe colonial ecologies of the human, we must extend these imaginations to plants and animals as well.

A botanical history reminds us that plant biogeography is a product of colonial extractive economies, continued human greed for larger houses and cheaper disposable products. Short term profits have again and again been chosen instead of the long-term health of the planet. Embracing Migrant ecologies is not an embrace of anarchic development. Rather, it forces us to recognize the legacy we have inherited and one we must address with responsibility and accountability. It recognizes that common responses such as pulling out invasive plants without changing the larger ecological and political context is a Sisyphean task. Migrant ecologies offer us naturecultural mode to rethink multispecies ecologies in histories of enduring colonial political economies

Part III: CASE STUDY: THE BOTANICAL GARDEN:

What better way to think through these histories than the quintessential case of the Botanical Garden, defined as "an establishment where plants are grown for display to the public and often for scientific study." While early gardens with medicinal plants such as the Orto Botanico di Padova in Italy in 1545 were associated with universities serving as "living laboratories" for the study of plants, especially their medicinal properties,²³ the organizational form and role of the modern gardens were shaped by European colonialism, especially their scientific imperatives and interests.²⁴ Gardens served as repositories of global flora collections, living monuments to celebrate and glorify colonial botanical conquest via international trade and migration.²⁵ While they showcased the glorious bounty of botany and empire, they also emerged as important sites for scientific development, sites that normalized scientific epistemologies and methods through institutions such as laboratories, herbaria and gardens.²⁶

Colonial histories of botany enshrined gardens as sites of Edenic spaces that celebrate colonial hubris of plant domination.²⁷ Gardens are not passive but active agents in colonial relations of extraction. During colonial times, plant explorers, procured plants at will, transported them across the world, cross bred, cultivated new varieties, and eventually patented them as private property.²⁸ Plants still remain the "property" of colonial gardens. Today their successors continue life in greenhouses, horticultural centers and plant conservatories across the world. Considerable labor went into the collections, transportation and considerable labor assures their

continued maintenance.²⁹ They are "living plant museums" not only metaphorically but literally. For example, anthropological exhibits such as Kew's People and Plant Museum link the greenhouse and museum worlds.³⁰ Willful erasure is always part of the story. As Grey and Sheikh argue, "a plant that was brought to an institution such as Kew Gardens would be given a Latin name, and in the process, the local knowledge that existed about that plant would be extracted and the source of the knowledge erased. By supplanting the local name, the world in which that plant existed also disappeared."³¹ These were rebranded it within Eurocentric scientific frameworks and language.

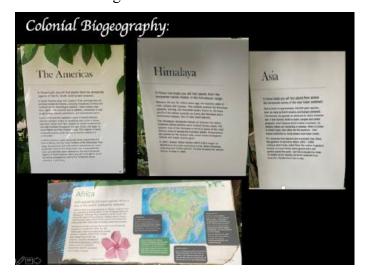
Furthermore, botanical gardens were used to showcase the botanical wealth of colonial empires, perpetuating narratives of superiority and dominance.³² Not only were plants stolen from indigenous homelands and waters, but they were also renamed in languages unknown to the plants and Indigenous Peoples. To add insult to injury, ideologies of *Terra nullius* rendered species as "newly discovered."³³ As Linda Tuhiwai Smith argues in *Decolonizing Methodologies*, it is not as though people, flora, fauna just disbursed across the world as the diffusionist paradigm would have us believe.³⁴ Global movement of flora and fauna was active, intentional and planned. Botanical colonization from South America of maize, sweet potatoes and tobacco were widely distributed. But at the center of the collection and distribution was the imperial "home" country. The colonies were peripheral satellites and they gained access to new knowledges and technologies through "recourse to the writings of authors in the centre". (62)

The Iconic Kew Gardens: The paradigmatic botanical gardens, Kew Gardens are situated in the Southwest of London. Founded in 1840, they house one of the most diverse botanical and mycological collections in the world. Spread across three hundred and thirty acres of luscious land, the Gardens showcase undulating lawns and flowering beds and luscious outdoor gardens. Kew Gardens was a central node to a global network that enabled the movements of plants, people but also power, profit and patronage. First developed as a pleasure ground to showcase the spoils of empire for the general public, Kew Gardens eventually also emerged as a key research institution for the botanical sciences. To showcase colonial power and prestige, elaborate glasshouses and landscaped gardens were designed to impress visitors with the diversity and abundance of flora from around the world. In this vast institution, over twenty-seven thousand taxa are curated, and over 8.5 million specimens are preserved in the herbarium

the largest in the world. Their library holds more than seven hundred and fifty thousand volumes and one hundred and seventy-five thousand prints and drawings. Today it is a World Heritage Site. But perhaps of greatest interest to me for this talk are their majestic indoor greenhouses or plant conservatories filled with global flora. Towering structures of steel and glass house a majestic spectacle of colonial power and its reach: Palm House, Temperate House, Alpine house, Water Lily House, Bonsai House, Evolution House, Orangery, and the extraordinary Princes of Wales conservatory.³⁷

Some of the key aspects of Kew Garden worth noting:

• Infrastructure of Colonial Splendor: Kew Gardens was conceived as a repository for the spoils of empire. The scale is massive and is intended to inspire awe and wonder. It is a powerful display of the global reach of empire. Since many plants could not live outdoors, the ability to create an indoor infrastructure to display a thick density of magnificent global flora is a show of might.



Colonial Biogeography: Plants at Kew are organized by regions of colonial conquest. They showcase what colonists extracted from each region. You can see rooms each which house plants from a particular continent. It is a powerful display of colonial dominance.

• Charismatic Species: Kew gardens charge an entrance fee and with it comes the need for grabbing a visitor's attention. While they house myriad species, many have necessarily been chosen for effect – big, tall, beautiful, grand – they involve charismatic species meant to astonish.

Temperate House

Over a 150 years in the Making

The Temperate House was commissioned in 1859 by the director of Kew, Sir William Jackson Hooker (1785–1865). It was designed by the renowned architect Decimus Burton (1800–1881) and opened to the public for the first time in 1863, although it took a further 36 years to complete.

• Colonial Plant explorers – At many places in the gardens, are signs (as the one on the left found outside the Temperate House) that celebrate famous colonists, including ones after whom particular plants were named after. Repeatedly the credit for botanical exploration is credit to colonial era scientists or modern western scientists

A sign at Kew Gardens:

"The Explorer's legacy: Plant hunting seems an odd concept in our modern world but the practice, steeped in a rich history, continues to this day. While motivations for plant hunters have changed over the years, from collecting status symbols to economic botany to conservation, the fruits of their labours form the backbone of our collections."

- Latin/Scientific Names: Plant names are binomial Linnaean scientific names which celebrate colonial power and its enduring effects.
- **Resource Curse**: In many of the pavilions I explored, economically important colonial plans were highlighted. These colonial logics connect important plants with colonial regions highlighting the reasons for the conquest and often the subsequent research at Kew on plant breeding.
- Modern day Saviors: Striking to me was how Kew Gardens frames their current research and scientists as modern-day saviors. Work such as preserving biodiversity, plant breeding innovations, the production of new varieties of plants, and helping former colonies with key botanical research are celebrated. The power of colonial influence—then and now—leave an indelible mark.

Wellesley College Global Flora:³⁸

While Kew Gardens is rooted in histories of empire, the idea of the Botanical Garden was taken up in many smaller spaces, especially in elite private colleges with a teaching mission where the Conservatory and Gardens were seen as interdisciplinary centers for the institution's intellectual

life. Starting in the 1920s, the greenhouses at Wellesley College (WC) flourished under the leadership of botanist Margaret Ferguson, an influential figure who later became President of the Botanical Society of America. When I arrived at the College in the Fall of 2023, I was very taken with the greenhouse. After 100 years of the original greenhouses with their original mission, when the dilapidated structures needed to be reimagined, the Director of the Botanical Gardens, Kristina Jones and her staff reimagined the greenhouses in a public exhibit "Global Flora" (WCGF) opened in 2019. Drawing on my own visits to Global Flora, teaching with global Flora and my interviews with Jones and the staff there are several contrasts. The Global Flora Exhibits is structured to queer colonial botanical practices and aesthetics to bring to the fore new modes of engagement with plant worlds.

I want to contrast to Kew Gardens with some of the deliberate efforts at Wellesley College that offer us models to rethink legacies of empire.

• Queering Geographies: Global Flora was conceived not along geographies of nations but by centering the plant and its ecological adaptation. It highlights convergent evolution – how plants across the world in similar habitats develop similar adaptations such as drought tolerance, wetlands or high salinity. In focusing on convergent evolution, the gardens ask: which plants across the world have evolved to grow in similar habitats? How can we imagine kinship structures that are not about sexual genealogies but affective adaptations? So. for example, GF is organized into two rooms – Dry Biome and Wet Biome. A bed of cacti come from all over the world and interestingly some plants thrive in both wet and dry biomes



Global Flora tour: The Dry Biome

The variety of species in this biome facilitates the study of the range of plant adaptations to arid conditions. The diversity of plant form on display is remarkable.

Global Flora tour: The Wet Biome

The larger of the two blomes is devoted to plants that thrive in moist subtropical environments, including substantial collections of palms, bromeliads, and jungle cactl. There are many ferns and allies, including a large tree fern, honoring the long history of cryptogamic botany at Wallacian







- **Diverse flora:** The GF is open to the public free. No doubt WC is a wealthy institution but the decision to keep it free was precisely to free it from a display of charismatic flora or to wow the audience. This has allowed great flexibility in featuring a range of interesting plants, some of which look quite boring and uninteresting.
- Plants & Empire: The Gardens are well integrated into an interdisciplinary education. For example, classes have incorporated a project "Plants and Empire." Each student works on a plant as a semester long project to highlight its links with empire. Historian Ashanti Shih began this project and I have taken it on. The idea is to tell a naturecultural history of plants.³⁹
- Naming Project: WCGF has embraced an ongoing "naming project" but highlighting local names of plants across the world. So many of the local names highlight the plant rather than the colonists celebrated in the scientific names.

The Plant Names Project

Wanting to recognize the diversity of peoples and cultures that live alongside the diversity of Global Flora plants in their home habitats, we embarked on the Plant Names Project: labeling plants with the common names used for them in their endemic range. Students are a key part of this project.





• Affective Ecologies: The WCGF takes on the mission of education seriously. Each year about twenty-five student volunteers are hired by the greenhouses. They students -who come from across the globe -help care for the plants but also serve as ambassadors as they run weekend tours for the public. I've been through several of them and each is different. These are not tours highlighting scientific truths but personal tours curated by individual students. Each is unique, highlighting how we might engage with plant worlds in diverse and multiple ways.

Students as staff

Students are essential members of the Botanic Gardens team and learn by doing. Horticulture assistants help with plant care and weekend watering. Aquatic systems specialists monitor water chemistry and care for the fish, and the plant health team monitors and helps manage pests and diseases through biological control. Curation assistants document the plant collections in the database and prepare labels and interpretive signage. In 2020-21, Global Flora provided part-time paid employment for 15 students.











- Engaged, Interactive Viewing: Rather than present plants as passive objects of viewing, WCGF invites the viewer to interact with the plant. Viewers are invited to understand the plant with all their senses. At various plants viewers are invited to touch, smell, listen, or bend down to observe more carefully,
- Plant Care: One of the striking aspects in some tours are highlights of regimes of care.

 Automated regimes of water and light rarely work. Plants need to be cared for observed with nuance, attended to, moved, replanted if happy. This is a multispecies community that needs to be understood as such (the raccoons that visited every night to eat the fish!).
- Memories of home: Some of the more touching moments in GF are students who recognize a plant in the indoor or outdoor gardens. These are striking and memorable moments highlighting how central plants are to memories of home. The gardens are particularly attuned to responding to student suggestions.

- **Grounded:** Greenhouses traditionally grow plants in pot. In global flora the bulk of the plants have been put into the ground. As a result, some can burrow quite deep into the ground.

 Again, there are wonderful stories of plant interactions that have changed who knows what plants are up to below ground!
- Multi-species Embrangled Lives: The joy of talking with the WCGF staff is the everyday life with plants. They regaled me with stories of individual plants and how they behaved, challenging species-thinking. They learn and work with the plant moving it, changing light and watering regimes to keep it "happy," and the joy of watching plants thrive. In these plants are not objects but part of a multispecies evolving community within WCGF.
- Shifting the Gaze: Finally, during the current term, we hope to shift the gaze of the viewer.

 While greenhouses are often about discovering plants, we hope to turn the gaze to the viewer.

 How might we or how should we act if we are being observed and experienced by plants?

My work with the WCGF has taught me what a different dimension plants bring to our questions of empire. I began this project with asking: Are gardens akin to museums or zoos? I think critiques of museums (and more recently herbaria) have largely concluded that museums began as colonial institutions and their ancient objects are the spoils of empire. They should be returned. While museums have initiated various projects of decolonization, and while they are moving slowly in their efforts to repatriate their objects, there seems large consensus that stolen objects should be returned. Zoos similarly are deeply problematic.

Botanical gardens are deeply challenging to think with because of plant time. Some plants have spent hundreds of generations in horticultural settings – crossed, bred, selected for conditions of the indoors. Some bear no relationship to their wild type ancestors. What does it mean to talk about returning to the wild? Take the example of the WCBG and their prized Camelia plant which is now around a hundred and sixteen years old. Gifted by one of the donors to the Gardens they remain. They continue to flower each year. Rather than transplant them, they have their own room and the gardens have been built around it. In the wild they can live thousands of years. Again, what does it mean to talk of return here? Many plants reproduce by multiple means such as vegetative, asexual, and a multitudinous sexual modes. They are flexible, inventive. They have evolved into their lives with new adaptations. While one can talk about the phasing out of zoos as animals die, plant time which can be a fraction of human time as well as

far exceed human time, challenge easy solutions. To me, in staying with these troubled histories, I can only think about our responsibility and accountability to plants. How to continue to care, and live with them. Our troubled histories have created multispecies communities. WCBG suggests a path where we do not reduce them to objects, but engage them in multispecies living – to engage with their brethren across the world, for their roots and shoots to tangle with their neighbors. There is vibrant life in these glass covered worlds if we are willing to move beyond the science of empire to a world where plants are multispecies kin.

My work with the WCGF has taught me the unique dimensions plants bring to our questions of empire. No doubt this is an elite institution with its own and enduring settler colonial histories. It is certainly no site of purity. Gardens are aesthetic projects profoundly shaped by coloniality. Yet, WCGF gives us a way to work with critique, to lay bare the histories of colonialism and its aesthetics. I began this project asking: Are, gardens like museums and zoos? I think critiques of museums (and more recently herbaria) have largely concluded that museums began as colonial institutions showcasing the spoils of empire, and these should be returned. Zoos similarly are deeply problematic. Botanical gardens, however, challenge us with plant time. Some plants have spent thousands of generations in horticultural settings – crossed, bred, selected for conditions of the indoors. Most have no relationship to kin in the wild. What does it mean to return plants to the wild? Take the example of the WCGF and their prized Camelia plant which is now around one hundred and sixteen years old. Gifted by one of the donors to the Gardens, one has flourished and continues to flower each year. Rather than transplant them, they have their own room and the gardens were built around it. In the wild they can live thousands of years. Can we even talk of return? Many plants reproduce by multiple means: vegetative, and many sexually promiscuous ways. They are flexible, inventive. Plant time and generational time challenge human time. Staying with these troubled histories, what emerges is our responsibility and accountability to plants. How to continue to care, and live with them? Our troubled histories have created multispecies communities. WCBG suggests a path where we do not reduce them to objects, but engage with them in multispecies living – celebrate their nonkin across the world, to rejoice in their roots and shoots as they tangle with their neighbors. There is vibrant life in these glass-covered worlds if we are willing to move beyond the science of empire to worlds where plants are multispecies kin.

Queering Global Flora

Using the case of the botanical garden, I have tried to articulate how we might find a path forward that both attends to the violence of our colonial pasts, and offers just futures. We cannot be ahistorical, and ground our lives in an originary politics of white purity, litmus tests of plant origins, landscape restorations to a mythic past. Indeed, we conserve and save native germplasms, seeds, and plants with greater zeal than recognizing native lands, native peoples, native cultures and native worlds.

Migrant ecologies offer a counter-colonial, naturecultural or a bio-cultural way forward. Indeed, introduced and invasive species were at the heart of the problematic that Darwin confronted in his travels. As environmental historians have long argued, imperialism was fundamentally an ecological project and its extractive regimes led to such a wild reshuffling across the globe that we should consider it the original bioinvasion. A recent study confirms that the redistribution of species accelerated with the start of European colonialism and that the colonial impact is still detectable in alien floras worldwide. They find, for example, that the composition of plant species is more similar across colonies occupied by the same empire. In an ultimate act of irony, they now insist on preserving the "neo-Europes" from newer immigrants from Asia, South America, and Africa. 40 As Anderson argues,

The astonishing a he astonishing organic ramifications of this "ecological imperialism" confronted Darwin at every stage of his voyage and proved to be crucial evidence in the subsequent development of his theory of the mechanics of life. Naturalization phenomena revealed the intended and accidental effects on nature of human agency. Darwin's use of this anthropogenic evidence in his early theorizing would be echoed in his later use of the effects—again, intended and accidental—of selective breeding in his analogical argument for the potency of natural selection. The effort to understand invasive species is not just an application of evolutionary theory. It was central to its origin.⁴¹

While Darwin's theories of plant invasions have yielded contradictory results, his framing of plants as naturecultural creatures is profoundly important, and a theoretical frame that we should recover and center in our ecological work. Migrant ecologies thus draws from biological, cultural, political and economic histories to help us theorize our fast-changing ecologies in the midst of climate change.

Thinking about WCGF, I am drawn to Jamaica Kincaid's work on colonialism and plants. 42 In analyzing Kincaid's garden, Julietta Singh sees an approach of vital ambivalence, a critical approach for an immigrant gardener who wishes to eschew the purity politics of celebrating native species even when struggling with dominating plant species in her garden.⁴³ Kincaid chronicles the constant ethical push and pull of "the relationship between gardening and conquest"—to be a fierce and antagonistic critic of colonized domination even while a bourgeois gardener. Refusing purity politics, she draws on "decolonial ethics through split forms of selfrepresentations that refuse modernity's insistence on a uniform self." Kincaid's vital ambivalence and the conceptual power of "impurity" propel me against purity politics nativism, xenophobia, walls, isolation, and incarceration. Simultaneously it also challenges romantic politics from the left, that seek unitary salvific "returns" to and claims to a future. In this context, a promiscuous, polymorphous, interdisciplinary methodological approach is precisely what we need to remind us that we are impure beings in impure nations with impure histories and genealogies. We should revel in impurity, embrace it as central to our politics, as methodologies and methods. As I have argued elsewhere, "What we need are impure politics, impure theories for impure time." Migrant Ecologies offers us a naturecultural way forward as we wrestle with the histories of empire.

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⁵ Stephen Muecke, "After Nature: Totenism Revisited." In Van Dooren, Thom, and Matthew Chrulew, eds. *Kin: Thinking with Deborah Bird Rose*. Duke University Press, 2022: 135- 148 ⁶ Leanne Betasamosake Simpson, "Not Murdered, Not Missing: Rebelling against

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