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SCOPE AND PURPOSE
In response to the increasing interest in the "global" as a field of inquiry, a perspective, and an approach, *Global Histories: A Student Journal* aims to offer a platform for debate, discussion, and intellectual exchange for a new generation of scholars with diverse research interests. Global history can provide an opportunity to move beyond disciplinary boundaries and methodological centrisms, both in time and space. As students of global history at Freie Universität Berlin and Humboldt-Universität zu Berlin, our interest lies not in prescribing what global history is and what it is not, but in encouraging collaboration, cooperation, and discourse among students seeking to explore new intellectual frontiers.

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Dear readers,

It is our pleasure to publish this special issue of *Global Histories: A Student Journal* themed around environmental history. This special issue, proposed by Dr. Frederik Schröer, gives us the opportunity to showcase the work of students from the MA Global History program at Freie Universität Berlin and Humboldt-Universität zu Berlin where our journal is based. The four research articles also reveal the varied work that can result from similar sources of inspiration, in this case Dr. Schröer's seminars Decolonizing Anthropocene Origins: Empire, Environment, and the "Invention of Nature" and Empire and Environment: The Origins of the Anthropocene in Global Colonial History. Additionally, they demonstrate a few of the many approaches that one can take to study global environmental history.

Likewise, this special issue has given our journal the opportunity for a creative and collaborative peer-review process, also proposed by Dr. Schröer, in which the authors worked together in an open review of all four research articles. This allowed for further discussion, development, and understanding of the themes in environmental history which the articles had organically shared. The authors elaborate on these common threads in their introduction to this issue.

We sincerely hope that you enjoy the latest issue of *Global Histories*.

Margaret Slevin
Editor in Chief

Acknowledgements

We would like to thank Dr. Frederik Schröer, research associate and lecturer in the Department of Global History at Freie Universität Berlin, for proposing this special issue. We are deeply grateful for his guidance and insightful feedback on the research articles throughout its formation. Thank you also to the authors published in this special issue: Carla Schmidt, Lars Marée, Zou Junhan (Joyce), and Sarah Wulbrecht. We greatly appreciate their dedicated and collaborative work as both authors and peer reviewers.

We are similarly grateful to the following members of the editorial board—Delia Bradley, Clayton Headrick, Bela Hubenstorf, and Kieran Isaacs—for their work on this special issue following the collaborative peer-review process. We would also like to thank You Wu for her thoughtful work as the graphic designer of *Global Histories*.

Finally, we are grateful for the continued support and assistance for this project by the Freie Universität Berlin, particularly the Department of Global History, chaired by Prof. Dr. Sebastian Conrad, and the Online Journal Systems team at CeDiS.

Introduction

By Lars Marée, Carla Schmidt, Sarah Wulbrecht, and Zou Junhan

Environmental history is on the rise. Rather than taking the human as its centre, environmental historians have shifted their focus, among other themes, to environmental destruction, colonial plantation building, and conflicting ideas of the human's position in its natural environment. This issue aims to join this innovative group of historians who attempt to shine a new light on histories already written from human-centred perspectives. The articles are ordered both chronologically and thematically as "the human" is increasingly decentred.

Three themes form a red thread through the following articles. Firstly, to different extents, the papers nuance the human-centredness of history writing. Influential academics who similarly decentred the human were Maan Barua and Kathleen Morrison.[1] The second theme encompasses a criticism of the productivising of Nature within the human-dominated systems of colonialism and capitalism. Texts by Jason W. Moore and Corey Ross inspired our research on this critique.[2] Lastly, the convergence of empire and science is central in our analyses of human-Nature relationships in history.

In her article, Carla Schmidt looks at the Acclimatisation Society in Berlin. Part of an international movement of acclimatisation societies, it was founded in the second half of the nineteenth century to introduce new plants and animals to Prussia. The article analyses the Prussian understanding and practices of acclimatisation. Schmidt argues that the society took a practical approach to acclimatisation. It understood it to be a process, a method, and a science. Further, the society's aims should be seen as a quest for Cheap Nature. Through acclimatisation, the society tried to appropriate extra-human labour to feed a growing population and increase the nation's wealth. Despite its nationalist aims, the society engaged in an international scientific exchange network connected to colonialism.

In the second article, Lars Marée applies the Foucauldian concept of biopolitics to a discussion of more-than-human actors on Ceylon's coffee plantations in the nineteenth century. As a result of profit-oriented cultivation

1 Maan Barua, *Plantation Worlds* (Duke University Press, 2004); Maan Barua, "Plantationocene: A Vegetal Geography," *Annals of the American Association of Geographers* 113, no. 1 (2023): 13–29; Kathleen D. Morrison, "Provincializing the Anthropocene: Eurocentrism in the Earth System," in *At Nature's Edge: The Global Present and Long-term History*, ed. Gunnel Cederlöf and Mahesh Rangarajan (Oxford University Press, 2018), 1–18.

2 Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (Verso, 2015); Corey Ross, *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World* (Oxford University Press, 2017).

techniques, the *Hemileia vastatrix* fungus spread on Ceylon's plantations, leading to their sudden downfall. Marée shows how colonial science, with its human-centred mindset, thoroughly impacted the life cycle of plants and fungi on plantation sites. Marée illustrates the active role of more-than-human organisms in Ceylon's plantation history. In his contribution, the author uses colonial agriculture manuals to describe the process of plantation building. Moreover, through a set of thematic maps, he highlights the environmental change that Ceylon faced during the fungus epidemic.

Thirdly, Zou Junhan examines how the lalang (*Imperata cylindrica*) shaped rubber cultivation and plantation management in early twentieth-century British Malaya. Following the "plant turn" in environmental history, the article shows the demonisation of lalang alongside Chinese and Malay labourers. Lalang symbolised disorder and unruliness and was used to justify colonial exploitation of human and more-than-human bodies. The author addresses the shifting practices of lalang eradication, revealing the dependency of commercial rubber cultivation on regulations of human and vegetal labour. Lastly, the article explores the construction of categories like "weeds." Lalang became reimagined as a commercial resource and a useful deterrent against fungal and other invasive threats. Drawing on scientific journals and newspapers, the article foregrounds lalang as an active agent, as its vegetal agency complicated empire-making and narratives of productivity and labour governance.

Finally, Sarah Wulbrecht explores how Rights of Nature discourse was utilized by the Whanganui Māori of Aotearoa New Zealand to fight for the sovereignty of their ancestral river, ultimately succeeding in winning it legal personhood—the first river in the world to be awarded this legal status. However, concepts originating in one context, such as Rights of Nature, do not remain static. As an idea travels, it encounters friction, a simultaneously propulsive and impedimental force that fundamentally changes the idea. Wulbrecht uses this conceptualization of friction, first put forth by Anna Tsing,[3] and the legal battles spearheaded by the Whanganui Māori to argue for a more "pluriversal politics,"[4] a way forward that decentres dominant narratives and makes space for many cosmologies and lifeways.

This gathering of research is a result of the seminars Decolonizing Anthropocene Origins: Empire, Environment, and the "Invention of Nature" and Empire and Environment: The Origins of the Anthropocene in Global Colonial History by Dr. Frederik Schröer at the Freie Universität Berlin. We are very

3 Anna Lowenhaupt Tsing, *Friction: An Ethnography of Global Connection* (Princeton Paperbacks, 2005).

4 Arturo Escobar, *Pluriversal Politics: The Real and the Possible* (Duke University Press, 2020).

grateful for the insights provided by Dr. Schröer that broadened our horizons of what constitutes environmental history. We greatly value his continued assistance and encouragement during the publication process. Lastly, we would like to thank the *Global Histories* team for making this publication possible and providing us with the opportunity to share our thoughts and ideas within this expanding field.

RESEARCH ARTICLES

For the Wealth of the Nation: The Acclimatisation Society in Berlin (1856–1874)

ABSTRACT

In the nineteenth century, across Europe and beyond, acclimatisation societies formed to introduce and acclimatise plants and animals in their respective countries. Prior research on this transnational phenomenon has pointed out that while the different societies, like the French and British societies, varied in their understanding of acclimatisation and in their aims, their development was tied to settler colonialism. The Acclimatisation Society in Berlin (Akklimatisations-Verein in Berlin) and its predecessors in contrast developed in a national context that was not yet involved in formal colonialism. To better understand the Acclimatisation Society in Berlin this article provides an analysis of its understanding of acclimatisation, its aims and its activities based on the society's publications. It argues that the Berlin Society, while taking a mostly practical approach and never formulating a coherent theory of acclimatisation, understood it to be not only a process and method but a science as well. Acclimatisation was seen as a patriotic activity, through which the society aimed to increase the nation's wealth. Key to understanding the Berlin Society's development is the specific historical context of Prussia's growing population, industrialisation, and the quest for a German nation-state. Against this backdrop, the society's activities can be understood as a search for Cheap Nature: Through science, they tried to appropriate extra-human labour to feed the growing population. Despite its nationalist orientation, the Berlin Society was part of an international scientific network of exchange that was connected to colonialism, and thus the society cannot be viewed as detached from it. This study of the Berlin Society thus provides insight into nineteenth-century European understandings of nature and the networks of science and knowledge that formed around it.

BY

Carla Schmidt

ABOUT THE AUTHOR

Carla Schmidt is currently a student in the MA Global History program at Freie Universität Berlin and Humboldt-Universität zu Berlin. She holds a bachelor's degree in history with a minor in political science from Universität Leipzig. Her research interests include modern German history with particular focus on the persecution of people stigmatised as "asocial," the production of historical knowledge, and archival silences.

Introduction

In 1858, the tradesman Ernst Kaufmann wrote of the landscape surrounding Coburg: "Forest and meadow spoke of the progress of acclimatisation because they bloomed and shone in the splendour of introduced plants; in and on them moved the animals that over time had become native."[1] Kaufmann visited Coburg as a representative of the Royal Prussian Acclimatisation Society (Königlich Preussischer Acclimatisations-Verein, hereafter referred to as KPAV) to an agricultural and forestry conference. While plants and animals had always travelled and spread to new places, the advent of colonialism increased those exchanges and made them a subject of increased economic interest.[2] The KPAV, founded in 1856, was part of a wave of societies that formed from the mid-nineteenth century onwards in Europe and beyond, seeking a more systematic approach to the introduction and, most importantly, the acclimatisation of new plants and animals within their respective countries.[3]

While all acclimatisation societies generally understood acclimatisation to be a mediated process of transplanting an organism into a new environment, the historian Michael Osborne has shown that the exact understanding of acclimatisation and its aim "varied with cultural, temporal and geographical context."[4] The French La Société d'Acclimatation (hereafter referred to as the "French Society"), the first of its kind, understood

1 Ernst Kaufmann, "Bericht über die Wirksamkeit des Vereins," *Zeitschrift für Akklimatisation* (from hereafter cited as *ZfA*) 1 (1858): 64. Unless otherwise noted, all translations are my own. Original: *"Wald und Flur sprachen von dem Fortschreiten der Acclimatisation: denn sie blühten und prangten im Schmucke eingeführter Gewächse; in und auf ihnen bewegten sich die im Laufe der Zeiten einheimisch gewordenen Thiere."*

2 Banu Subramaniam, "Through Linnaean Labyrinths: A Botanical Colonization," in *Botany of Empire: Plant Worlds and the Scientific Legacies of Colonialism* (University of Washington Press, 2024), EBSCOhost; Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Harvard University Press, 2004), 3–12.

3 The French and British Acclimatisation societies have received some scholarly attention, see Christopher Lever, *They Dined on Eland: The Story of the Acclimatisation Societies* (Quiller Press, 1992); Warwick Anderson, "Climates of Opinion: Acclimatization in Nineteenth-Century France and England," *Victorian Studies* 35, no. 2 (1992), https://www.jstor.org/stable/3828004; Michael A. Osborne, *Nature, the Exotic, and the Science of French Colonialism* (Indiana University Press, 1994); Michael A. Osborne, "Acclimatizing the World: A History of the Paradigmatic Colonial Science," *Osiris* 15, no. 1 (2000), https://doi.org/10.1086/649323; Anita Guerrini and Michael A. Osborne, "Animals in Circulation: The 'Prehistory' of Modern Zoos," in *The Ark and Beyond: The Evolution of Zoo and Aquarium Conservation,* ed. Minteer et al. (University of Chicago Press, 2018). On societies in (former) British colonies, see Thomas R. Dunlap, "Remaking the Land: The Acclimatization Movement and Anglo Ideas of Nature," *Journal of World History* 8, no. 2 (1997), https://www.jstor.org/stable/20068597; Harriet Ritvo, "The World as Zoo: Acclimatization in the Nineteenth Century," in *The Ark and Beyond*: *The Evolution of Zoo and Aquarium Conservation,* ed. Minteer et al. (University of Chicago Press, 2018).

4 Osborne, "Acclimatizing," 137.

acclimatisation to be the process of adaptation and possible transformation that an organism undergoes when transplanted into a new, foreign environment. The British Society, in contrast, was anti-transformist and viewed acclimatisation as merely the transplantation of an organism between analogous climates.[5] Both societies, however, viewed acclimatisation as a means to bolster food production. Moreover, they were entangled with their countries' colonial efforts, with Osborne considering acclimatisation to be one of the essential sciences of French colonialism in Algeria.[6] Acclimatisation societies in British settler colonies, in contrast, were often more interested, as Harriet Ritvo puts it, in "supplanting the local fauna than supplementing it" to reshape the landscape to something familiar.[7] The American Acclimatization Society, for instance, tried to introduce all the songbirds mentioned by Shakespeare to New York City's Central Park in the 1890s.[8]

What united these societies despite their differing aims was the colonial context from which they emerged. Indeed, Osborne has argued that acclimatisation studies and the proliferation of the societies in the nineteenth century have been tied to the pan-European phenomenon of settler colonialism.[9] Unlike its French and British counterparts though, the KPAV and its successor, the Acclimatisation Society in Berlin (Akklimatisations-Verein in Berlin), which formed in 1863 from a merger of the KPAV with the competing Central Institute for Acclimatisation in Germany (Central-Institut für Akklimatisation in Deutschland, from hereafter referred to CIAD), did not emerge in a state engaged in formal colonialism. The German Empire, unified in 1871, only acquired colonies in 1884 after the Berlin Society had already disbanded.[10] Against this backdrop, this essay will examine the Berlin Society and its predecessors, which have so far received only little scholarly

5 Anderson, "Climates," 136–137; Osborne, "Acclimatizing," 137.

6 Osborne, *French Colonialism*, xiv.

7 Harriet Ritvo, *The Animal Estate: The English and Other Creatures in the Victorian Age* (Harvard University Press, 1987), 240; Dunlap, "Remaking," 304.

8 Banu Subramaniam, "Like a Tumbleweed in Eden: The Diasporic Lives of Concepts," *Contributions to the History of Concepts* 14, no. 1 (2019): 7, https://doi.org/10.3167/choc.2019.140101.

9 Osborne, *French Colonialism*, 176.

10 While the year 1884 signifies the beginning of formal German colonialism, German colonial entanglements have a longer history. Examples of these entanglements for example include German trade companies' activities in West Africa and the South Pacific in the nineteenth century. Further, especially since the 1870s there were increased calls for German colonies within the German Empire and a colonial movement formed. For overviews of German colonialism before 1884 see Sebastian Conrad, *Deutsche Kolonialgeschichte* (C. H. Beck, 2023), 22–27 and Horst Gründer, *Geschichte der Deutschen Kolonien,* 8th ed. (Ferdinand Schöningh, 2023), 17–25, 47–54.

attention.[11] Based on the societies' publications, in particular the *Journal for Acclimatisation* (*Zeitschrift für Akklimatisation,* from hereafter referred to as *ZfA*), which was published between 1858 and at least 1874, the societies' aims, understanding of acclimatisation, and activities will be analysed to better understand this particular variation of a transnational phenomenon.[12] In the following, the term "Berlin Society" will be used when discussing the activities of the Prussian societies. If relevant, it will be specified whether the KPAV, the CIAD, or the society post-1863 is meant.

To the Berlin Society, I argue, acclimatisation had three interrelated meanings: It was not only seen as a process and a method but also a science, though the society mostly focussed on the practical application of acclimatisation and never developed a coherent theory of what acclimatisation was. Acclimatisation was understood to be a patriotic activity. The society's main purpose was to increase the wealth of the nation, first the Prussian and later the German. This points towards the specific context in which it emerged: a time of a quest for a German nation-state, a growing population, and rising industrialisation. Further, I argue that the Berlin society's activities and those of other European acclimatisation societies can be understood, following Jason W. Moore, as a quest for Cheap Nature.[13] By extracting extra-human natures and appropriating them with the help of science, they tried to find cheaper sources of nutrition for their respective populations. They clearly saw humans as separate from and as masters of nature. Lastly, I argue that while the Berlin Society predates formal German colonialism and pursued nationalist aims, it was still part of an international knowledge network and through this network, profited from other countries' colonial efforts.

To show this, I first discuss acclimatisation discourses in Europe in the nineteenth century and then introduce the Prussian case study. After introducing the Berlin Society's main publication and discussing its basic understanding of acclimatisation, I will then take a closer look at the society's understanding of climate in the *ZfA* before turning to the society's aims and

11 On the Prussian Acclimatisation societies, see Annelore Rieke-Müller and Lothar Dittrich, *Der Löwe brüllt nebenan: Die Gründung Zoologischer Gärten im deutschsprachigen Raum 1833 - 1869* (Böhlau, 1998); Iris Borowy, "Akklimatisierung: Die Umformung Europäischer Landschaft als Projekt im Dienst von Wirtschaft und Wissenschaft, 1850-1900," *Themenportal Europäische Geschichte*, 2009, https://www.europa.clio-online.de/essay/id/fdae-1493; Iris Borowy, "The Other Side of Bio-Invasion: The Example of Acclimatization in Germany," in *Invasive and Introduced Plants and Animals: Human Perceptions, Attitudes and Approaches to Management*, ed. Ian D. Rotherham and Robert A. Lambert (Taylor & Francis, 2011).

12 The volumes from 1858 to 1861, 1863 to 1866 and 1869 to 1874 are included in this analysis. It was not possible to obtain the volumes from 1862, 1867 and 1868.

13 Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (Verso, 2015), 62–64.

how it understood the relationship between humans and nature. In a final chapter, I will give an overview of the society's activities and briefly bring in the question of colonialism.

Acclimatisation Discourses in the Nineteenth Century

In the nineteenth century, the concept of "acclimatisation" became a major theme in the natural sciences and colonial discourses. The word "acclimatisation" itself first appeared in the eighteenth century in French, being used as early as 1775 by the naturalist Comte de Buffon.[14] It is unclear when the term first started to gain traction in German, but its first mention in an encyclopaedia occured in 1840, indicating that it was a concept of some importance since it warranted an entry.[15]

Already around 1800, multifaceted debates about the transformation of life forms were happening in the natural sciences in Europe.[16] One significant contribution to this debate was made by Jean-Baptiste de Lamarck (1744–1829), who argued that the forms and characteristics of organisms could change due to their external environment and that those acquired characteristics were inheritable. The French zoologist Isidore Geoffroy Saint-Hilaire (1805–1861) shared this view of malleability even though, unlike Lamarck, he did not consider the variability of forms to be unlimited. He further believed that this transformation process could be actively managed.[17] Thus, in 1854, he founded the first acclimatisation society in Paris, which sought a more organised and methodical approach to the transfer of plants and animals and their acclimatisation. For this purpose, in 1860, the French Society founded the Jardin Zoologique d'Acclimatation in Paris, which served both as a zoological garden and as a laboratory for acclimatisation. Aside from scientific interest, the society was driven by economic gain and colonial ambitions. It acted in an advisory capacity for the French government and French colonial officials.[18] After the founding of an associated acclimatisation society in Algiers in 1859, the society's garden there became an important laboratory for the French Society as well. Acclimatisation became a tool for the French colonisers in Algeria who had hopes of turning Algeria, through acclimatisation, into a replacement for Saint Domingue.[19]

14 Guerrini and Osborne, "Animals," 24.

15 "Acclimatisirung," in *Das große Conversations-Lexicon für die gebildeten Stände. Original-Ausgabe. 1. Band: A – Alexandreum* (Bibliographisches Institut, 1840), MDZ München, 191.

16 Pietro Corsi, "Before Darwin: Transformist Concepts in European Natural History," *Journal of the History of Biology* 38 (2005): 68, https://doi.org/10.1007/s10739-004-6510-5.

17 Guerrini and Osborne, "Animals," 24.

18 Borowy, "Bio-Invasion," 156.

19 Anderson, "Climates," 146; Osborne, "Acclimatizing," 150.

The short-lived British Society (1860–1866), while much less influential than the French Society, pursued similar economic and colonial aims. Much of its correspondence was with British colonial officials, and part of its declared objectives was the exchange of animals and plants between England and British Colonies.[20] It did not share the transformist or evolutionary ideas of the French Society, instead more concerned with identifying organisms that were well-suited for consumption.[21] Unlike the French Society, it was never able to secure the support of the government and was eventually absorbed into the Ornithological Society of London.[22] Similar to the British and Algerian societies inspired by the French example, acclimatisation societies were created all over Europe, for instance, in Madrid and Moscow, in the US, and in various colonies, such as Port Natal (now Durban, South Africa), India, Australia, New Zealand, and Ceylon (now Sri Lanka).[23]

At the same time, an entirely different discourse about acclimatisation was taking place. This discourse concerned human acclimatisation, particularly that of Europeans in the tropics and was a decisive question for colonial ambitions. Entries from two main German encyclopaedias, *Meyer's* and *Brockhaus,* from the second half of the nineteenth century, provide insight into this debate, which built upon Hippocratic notions of the importance of local geographical conditions and had been ongoing since the Enlightenment.[24] All editions of the encyclopaedias that discuss acclimatisation put a particular focus on the question of human acclimatisation. The entries reveal a racialised thinking, which posited the existence of biologically distinct human races with different areas of distribution and capacities to adapt. They also reflect the gradual strengthening of the notion that there were clear biological limits to where these human races could adapt that occurred in the second half of the nineteenth century.[25] While the 1840 *Meyer's* described the human capacity to acclimatise as relatively high, already in the 1860s, the *Brockhaus* instead underlined the limited human capacity for acclimatisation.[26] The 1864 edition exemplifies this. Whereas Europeans in North America apparently changed in appearance and became "real Yankees," Jews were, invoking antisemitic

20 Ritvo, *Animal Estate*, 240; Lever, *Eland*, 29.

21 Anderson, "Climates," 148; Osborne, "Acclimatizing," 140; Ritvo, *Animal Estate*, 240.

22 Anderson, "Climates," 147.

23 Lever, *Eland*, 10, 193–194.

24 Ruth A. Morgan, "Climate and Empire in the Nineteenth Century," in *The Palgrave Handbook of Climate History*, ed. Sam White, Christian Pfister, Franz Mauelshagen (Palgrave Macmillan, 2018), 591.

25 Eric T. Jennings, *Curing the Colonizers: Hydrotherapy, Climatology and French Colonial Spas* (Duke University Press, 2006), 11–12, 29–30.

26 "Acclimatisation," in *Allgemeine deutsche Real-Encyklopädie für die gebildeten Stände. Conversations-Lexikon. 1. Band: A – Arad*, 11th ed. (Brockhaus, 1864), Google Books, 130; "Acclimatisirung" (1840), 191.

stereotypes, described as being the only fully acclimatisable human race due to their "nature."[27] Further, it was claimed that Europeans in North Africa were incapable of surviving without relying on local populations.[28] This referenced a common trope that claimed that Europeans could not adapt to warmer, tropical climates, and thus the agricultural work in colonies had to be carried out by populations who were born in and used to these climates. This idea was used to justify slavery and the subjugation of populations.[29]

Towards the end of the nineteenth century interest in human and non-human acclimatisation, began to wane due to a growing awareness of the dangers that the introduction of plants and animals could pose to existing ecosystems, the rise of biological concepts that emphasised heredity over environmental factors, the adaptation of germ theory and greater knowledge on tropical diseases.[30]

Acclimatisation in Prussia

In July 1856, Ernst Kaufmann, likely inspired by the French Society, founded the KPAV in Berlin, intended as an "association of enlightened men of all estates" interested in promoting acclimatisation.[31] Its foundation came at a time of uncertainty over the foundation of a German state and of a rapidly growing Prussian population that needed to be fed, leading to changes and developments in agriculture.[32] Furthermore, there was a growing popular interest in the natural sciences, with the period after 1830 being described as the "heyday" of natural science associations in the German states.[33]

Membership in the society was offered to individuals within and outside Prussia, and to other societies, typically with agricultural aims. In 1859, some members broke away to establish the competing CIAD. The historian

27 "Acclimatisation" (1864), 130–131.

28 "Acclimatisation" (1864), 130.

29 Morgan, "Climate," 593. For further discussion of human acclimatisation with a focus on the medical discourse, see David Livingstone, *The Empire of Climate: A History of an Idea* (Princeton University Press, 2024), 76–121, ProQuest Ebook Central. For a discussion which puts acclimatisation in context with the concept of acculturation, see Eva Horn, *Klima: Eine Wahrnehmungsgeschichte* (S. Fischer Verlag, 2024), 171–192.

30 Anderson, "Climates," 151–153, Osborne, "Acclimatizing," 140.

31 Ernst Kaufmann, "Aufruf zur Bildung eines Acclimatisations-Vereins," in *Sammlung von den in genannter Druckerei gedruckten Edicten, Gesetzen und sonstigen amtlichen Erlassen. Band XLVIII.*, ed. Archiv der Deckerschen Geheimen Ober-Hofbuchdruckerei (1856), 14.

32 Borowy, "Akklimatisierung."

33 Andreas Daum, "Vereine und Gesellschaften im 19. Jahrhundert," in *Evolution: Ein interdisziplinäres Handbuch*, ed. Philipp Sarasin and Marianne Sommer (Springer Nature, 2010), 151.

Iris Borowy has argued that this split was mainly due to a perceived lack of a more practical approach to acclimatisation but might have been influenced by differing political stances as well. The CIAD, as its name—referring to Germany instead of Prussia—already suggests, had a more progressive, German-nationalist orientation than the KPAV.[34] German-nationalist orientation in this context primarily means the wish for a united German nation-state. This orientation is confirmed in the *ZfA*, which quoted Dr. Leopold Buvry, who was involved in the founding of the CIAD. According to the *ZfA*, he felt the split was necessary since the KPAV appeared to be merely a dependent of the French Society, which was against "the dignity of the German fatherland," a stark expression of support for a unified German nation-state.[35] Even though the split caused some resentment, the societies merged in 1863 to form the Acclimatisation Society in Berlin.[36]

Membership in the Berlin Society was more varied compared to the British Society, which was dominated by nobility and gentry. The Berlin Society did have some noble and even royal patrons, but most of its members were male academics, civil servants, tradesmen, or involved in agriculture and horticulture.[37] Despite Kaufmann's above-cited proclamation that it was to be a society for "men of all estates," no members were workers, and it was overall a bourgeois organisation. Throughout its existence, the Berlin Society never had more than 400 members, making it relatively niche. It remained active until at least 1874. After that, no publications have been found, although there are hints of the society's continued activity in some newspapers at least until 1877.[38]

Acclimatisation as Process, Method, and Science

The KPAV journal, the *ZfA*, remained the Berlin Society's main publication after the merger. The journal was used to inform members of the society's activities and news on acclimatisation efforts. Its contents included reports on the society's meetings, member activities, and other acclimatisation activities, detailed articles on different topics such as specific types of plants, and relevant correspondence. Authorship in the journal varied. There were some regular contributors, but all members could technically contribute.

34 Borowy, "Bio-Invasion," 157.

35 "Entgegnung," *ZfA* 3 (1860): 113, Original: *"Es sei nun der Würde des deutschen Vaterlandes unangemessen[…]."*

36 Borowy, "Akklimatisierung."

37 Borowy, "Akklimatisierung."

38 "Tagesgeschichte," *Weißeritz-Zeitung: Tageszeitung und Anzeiger für Dippoldiswalde, Schmiedeberg u. U.*, July 07, 1877, 2, https://www.deutsche-digitale-bibliothek.de/newspaper/item/GQGKC7R2IK6CVAEW26PMR5NMJZWAQO6W?issuepage=2.

Despite being a journal for acclimatisation, the *ZfA* did not focus heavily on defining acclimatisation; it rather adopted a more pragmatic approach. Most of its contents suggested or detailed attempts to acclimatise certain plants and animals without concerning itself with the precise meaning of said acclimatisation. Instead, authors tended to give extensive descriptions of the anatomy and behaviours of the suggested plants and animals. Still, over the course of the journal's publication, a clearer, yet often contradictory, idea of acclimatisation emerged. Historian Annelore Rieke-Müller and zoologist Lothar Dittrich argue that acclimatisation was seen as both a process and a method, and this assessment is reflected in the journal, where, I argue, acclimatisation was understood to be a process, a method, and a science.[39]

As a process, acclimatisation in the *ZfA* meant the adaptation of a plant or animal to a new climate. It becomes clear that, similarly to the French Society, the Berlin Society followed transformist ideas, as they believed that adjusting to a new climate could cause changes in the organism.[40] Acclimatisation as a method was understood to be the introduction of useful plants and animals to the "*Heimath*" or the native lands, meaning Prussia and/or Germany.[41] This meant teaching the introduced organisms to "defy the climate" and attempting to mitigate the impact of a changing climate and altered nutrition for the organisms.[42] The method of acclimatisation was also described as "making something native" ("*Heimischmachung*"), which points towards the quite blurry line between the concepts of acclimatisation and naturalisation in the Prussian context that were also present in the French and British contexts.[43] The members of the Berlin Society were aware of this similarity. They offered several explanations to distinguish the processes, with Kaufmann explaining that for animals, acclimatisation was akin to staying in a foreign place, whereas naturalisation was akin to gaining citizenship there.[44] A more concise explanation held that a naturalised organism could survive and reproduce on its own, unlike an acclimatised one, which relied on humans.[45] Some conceptual ambiguity remained, as the introductory quote shows, in which naturalised animals were seen as signs of the progress of acclimatisation.

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39 Rieke-Müller and Dittrich, *Löwe*, 117.

40 Ernst Kaufmann, "Die Acclimatisations-Vereine," *ZfA* 3 (1860): 76.

41 F. W. Voigt, "Ueber die Nothwendigkeit und den zweckmäßigsten Betrieb der Akklimatisation, Einleitende Betrachtungen bei der Gründung des Central-Instituts für Akklimatisation in Deutschland," (1859) [Auszüge], *Themenportal Europäische Geschichte*, 2009, www.europa.clio-online.de/quelle/id/q63-28384.

42 Carl Bolle, "Ueber die Acclimatisation der Pflanzen," *ZfA* 1 (1858): 30. Original: "*[…] dem Klima trotzen lehrt […].*"

43 Voigt, "Central-Institut"; "Verhandlungen," *ZfA* 1 (1858): 18; Osborne, "Acclimatizing," 137.

44 Kaufmann, "Acclimatisations-Vereine," 82.

45 Bolle, "Pflanzen," 30.

Acclimatisation, as a method, I argue, was supposed to be supported in its more practical approach by acclimatisation as a scientific discipline, which aimed to research the conditions under which it was possible. Here, some disagreement on the progress of acclimatisation becomes apparent. Some in the *ZfA* already proclaimed acclimatisation to be a science, whereas others, like the botanist Paul Sorauer in 1866, felt that acclimatisation had to move further away from empiricism and produce more universally applicable results to become a true science.[46]

The concept of acclimatisation held, as I have shown, three interrelated meanings for the Berlin Society. Despite this, the society took a not so theoretical approach, practicing acclimatisation mostly as a method, instead of concerning themselves with developing a coherent theory, as I show below.

Scientific Discourses: Climate and Biogeography

The concept of climate is key to defining the process of acclimatisation. Despite this, only two articles in the *ZfA* explicitly attempted to define climate. In an 1858 article, the naturalist Carl Bolle described climate as shaped by isotherms, a term coined by the famed naturalist Alexander von Humboldt to describe lines connecting areas of similar temperature.[47] Two years later, Kaufmann criticised this understanding of climate as too simplistic, arguing that climate should not be understood in its geographic meaning but rather as hygienic. This, for him, meant considering a multitude of factors to determine the climate of a specific location, including, among others, air temperature, humidity, altitude, and the chemical and hygrometric characteristics of the ground.[48] Both attempts at defining climate point to the paradigmatic shift that the concept had undergone. For centuries, climate had been understood as purely geographic and determined by latitudes. From the second half of the eighteenth century onward, though, climate began to be understood as being determined by a multitude of factors, including latitude, but also altitude, maritime circulation systems, and more. This conceptual change laid the groundwork for understanding climate not as a geographical concept, but as a

46 Paul Sorauer, "Die nächste Aufgabe der Akklimatisation," *Zeitschrift für Akklimatisation. Neue Folge* (from here on cited as *ZfA NF*) 4 (1866): 88. While Sorauer and his contemporaries understood acclimatisation as an "objective" science or hoped for it to be one, it is important to point out that it, of course, was not one. Through concepts such as nativity, it was highly influenced by the social and historical context in which it emerged, and through the discourses on human acclimatisation, deeply intertwined with racism. For a discussion on nativity and historic nature of concepts, see Subramaniam, "Tumbleweed," 10.

47 Bolle, "Pflanzen," 45–46.

48 Kaufmann, "Acclimatisations-Vereine," 75–76.

meteorological one.[49]

Interconnected with the concept of climate and key to acclimatisation was the question of the distribution of organisms. Plants and animals in the *ZfA* were understood to be either native to the German lands (and climate) or foreign, with specific areas of distribution determined by climate.[50] This points to their engagement with the burgeoning field of phytogeography, which would later evolve into biogeography, and dealt with the geographic distribution of plant species. This field of study was strongly influenced by Humboldt, who was admired by the Berlin Society and, to their delight, praised their efforts in 1858.[51] Curiously, despite the importance for the success of their efforts, there was no set understanding in the Berlin Society about which climates were suitable for a transfer. The *ZfA* primarily suggested that only transfers between analogue climates are possible, with those from warmer to colder climates potentially leading to the degeneration of organisms.[52] Still, there were dissenting voices that claim transfers from warmer climates are possible, citing historical examples such as the transfer of wheat to Europe and voicing hopes of introducing animals like the African ostrich and the zebu, which primarily inhabit tropical and steppe environments.[53]

Overall, these examples show that the Berlin Society actively engaged with and reflected contemporary debates and developments in the natural sciences, even as early as 1861, positively commenting on Darwin's idea of the "struggle for existence."[54] At the same time, it becomes clear that there was no coherent theory of how, or under what circumstances, acclimatisation was possible. This highlights the Berlin Society's practical approach, which was more concerned with introducing specific plants than with establishing clear definitions. Clearly, practising acclimatisation as a method was the central concern of the society.

Acclimatisation, Humans, and (Cheap) Nature

The primary purpose of the society was already clearly stated in the statutes of the KPAV. It was intended to introduce and acclimatise plants and animals that

49 Franz Mauelshagen, "Climate as a Scientific Paradigm—Early History of Climatology to 1800," in *The Palgrave Handbook of Climate History*, ed. Sam White, Christian Pfister, and Franz Mauelshagen (Palgrave Macmillan, 2018), 566, 573, 581.

50 Bolle, "Pflanzen," 45–46.

51 "Vereinsverhandlungen," *ZfA* 1 (1858): 108.

52 Kaufmann, "Aufruf"; Kaufmann, "Acclimatisations-Vereine," 76.

53 Sorauer, "Aufgabe," 83; L. Buvry, "Ueber den eigentlichen Zweck der Akklimatisation durch Einführung edler Nutzthiere," *ZfA NF* 2 (1864): 180–181.

54 Geysmer, "Ueber Race und Racenbildung," *ZfA* 4 (1861): 214–225.

could be useful, aesthetically pleasing, and contribute to the nation's wealth.[55] This, in practice, encompassed both edible organisms and those that could stimulate industry, such as the silkworm. Acclimatisation and the aims of the society were clearly seen as a patriotic activity that aimed to improve the "fatherland." In 1858 the journal wrote, "it is the soil of the fatherland, which we want to enrich, to beautify, which we more and more in all its part want to turn into a garden."[56] This again highlights the historical context in which the society emerged: a period preoccupied with defining and creating a German nation and establishing it as a power equal to other European states.[57] This becomes very clear when Leopold Buvry, in 1870, argued for the establishment of a garden, claiming that Berlin needed such an institution to be equal to other European capitals.[58] Although they also argued that their activities were "charitable" and served not only Prussian and German interests but also contributed to the welfare of humanity, the patriotic narrative remained the common thread throughout the journal.[59]

The idea of acclimatisation as a patriotic activity was interwoven with the idea that it constituted a marker of civilisation. While it was characterised as an ancient human activity, its systematic practice was seen as the practice of "*Kulturvölker*" (cultured people).[60] According to Paul Sorauer, its transformation into a method and science was only necessary "when a people on a high cultural level, with a growing population, are on a certain stretch of land, forced to extract more and more food from the soil."[61] Thus, according to him, despite acclimatisation being a long-standing activity, only people on a high cultural level pursued it systematically. Sorauer implied a supposed European superiority, as it was primarily in Europe and its colonies that acclimatisation societies aiming for a systematic approach formed, thereby supposedly proving their high cultural level. It further illustrates the extractivist thinking that underlies much of the discussions of nature in the *ZfA*. Organisms were either understood to be useful by providing nutrition,

55 "Statuten des Acclimatisations-Vereins für die Königlich-Preussischen Staaten," *ZfA* 1 (1858): 5.

56 Bolle, "Pflanzen," 49. Original: "*[…] dass es der Boden des Vaterlandes ist, den wir zu bereichern, zu verschönern, den wir mehr und mehr in allen seinen Theilen zu einem Garten umzuschaffen haben.*"

57 Borowy, "Bio-Invasion," 156.

58 Leopold Buvry, "An die Mitglieder des Akklimatisations-Vereins," *ZfA NF* 8 (1870): 93.

59 Leopold Buvry, "Bericht über die Thätigkeit des Akklimatisations-Vereins in Berlin im Jahre 1872," *ZfA NF* 11 (1873): 29; Kaufmann, "Aufruf"; Voigt, "Central-Institut"; Poselger, "Bericht über die Wirksamkeit des Vereins gehalten in der General-Versammlung am 25, Januar 1859 im Namen des Vorsitzenden," *ZfA* 2 (1859): 30.

60 "Vereinsverhandlungen," (1858), 108.

61 Sorauer, "Aufgabe," 83–84. Original: "*wenn ein Volk auf einer hohen Kulturstufe, bei immer grosser werdender Zahl der Einwohner auf einer bestiimmten Ländertrecke gezwungen wird, immer mehr Nahrungsmittel dem Boden abzugewinnen.*"

introducing new industries, or improving local species through crossbreeding or as "non-useful" and thus irrelevant to society. When one member, for example, suggested the society put effort into the acclimatisation of Angora cats, his request was rejected since "the animals neither catch mice nor have any other use."[62]

The Berlin Society had a dichotomous view of humans and nature, with humans clearly positioned outside of nature and having power over it.[63] Nature was not only understood as the entirety of all non-human organisms, but also, more often, used as a concept that could even be personified and described as agentive. There was some ambiguity, since nature was also described as an agent of acclimatisation, with one article claiming it could achieve better results than humans. The same article also described humans as capable of acclimatisation, implying a power of nature over humans. This was, however, the only mention of human acclimatisation in all volumes of the journal.[64] A reason for this could be that, in the discourse on human acclimatisation, the notion of its impossibility was gaining traction, which would also have an impact on the idea of acclimatisation as a whole and thus contradict the Berlin Society's efforts. Despite those ambiguities, overall, the journal presented a clear narrative of human mastery over nature. Already, the founding call of the KPAV argued that "nature offers us the richest treasures which are at the moment not being harnessed in the measure at which they offer themselves as exploits."[65]

In his book *Capitalism in the Web of Life*, Jason W. Moore argues against seeing capitalism and nature as separate, instead characterising capitalism as a "way of organizing nature."[66] He introduces the concept of Cheap Nature which he argues capital is always searching for and which is created when capital, science, and empire "succeed in releasing new sources of free or low-cost human and extra-human natures for capital."[67] In particular, capital is always seeking cheaper sources of food, energy, labour power, and raw materials.[68] The Berlin Society can be understood to be in search of such Cheap Nature, in particular, cheap food. By attempting to obtain suitable and useful plants and animals and adjusting them with the help of science,

62 "Vorstandssitzungen," *ZfA* 1 (1858): 136. Original: "*Da diese Thiere weder Mäuse fangen, noch sonst einen Nutzen haben.*"

63 "Vereinsverhandlungen," (1858), 109; Buvry, "Nutzthiere," 180.

64 Kaufmann, "Acclimatisations-Vereine," 78, 85.

65 Kaufmann, "Aufruf." Original: "*Die Natur bietet uns die reichsten Schätze, welche aber grad nicht in dem Maaße gehoben werden, wie sie sich der Ausbeute darbieten.*"

66 Moore, *Capitalism*, 14.

67 Moore, *Capitalism*, 63

68 Moore, *Capitalism*, 62–63.

in Moore's sense "appropriating them," they tried to more efficiently feed the growing population and ultimately increase their nation's wealth in a time of rapid industrialisation in Prussia and Germany.[69] This does not only become apparent in Sorauer's discussion of populations being forced to extract more resources from the soil, but also in a speech given by the chairman of the KPAV, Carl Dieterici, in 1858. Dieterici was not a naturalist but an economist, which he saw as a profession closely tied to acclimatisation, since they shared the same aim: "improving the nation's wealth."[70] In his speech, he calculated how much better the population of Prussia could be fed if, for example the yield of wheat per *morgen* were increased through the introduction of new varieties.[71]

Not only the Berlin Society's aims and activities, though, can be understood this way. France's aim to turn Algeria into a substitute for St. Domingue through acclimatisation can, for example, be characterised as an attempt to make up for the loss of a specific historical, Cheap Nature through a combination of science and empire. Thus, the European acclimatisation movement, can be understood as a quest for Cheap Nature amid growing populations, increasing industrialisation, and, in some cases, colonialism.

Putting Acclimatisation into Action: The Society's Activities

Apart from publishing the journal, the Berlin Society attempted to acclimatise plants and animals. Unlike the French and British societies, its attempts at introduction and acclimatisation were mainly limited to plants. It never possessed the space or resources to import big animals, so plans such as the introduction of alpacas could not be realised.[72] When the society owned larger animals, such as its Angora goat, it relied on members to provide the shelter and cover the costs.[73] Much of the reporting over the years focused on silkworms, bees, wild rice, and the numerous seeds the society acquired and distributed to its members. Seed distribution was one of their key activities. In 1870, for instance, they handed out 250 different types of seeds, with most seeds being different varieties of potatoes, peas, beans, and wheat. The members were asked to plant and grow them and report back to the society, which would then assemble the results to gain insight into the introduction and acclimatisation of certain plants in the local climate.[74] The reliance on reports from members was at least partly due to a lack of society ownership of

69 Moore, *Capitalism*, 63.

70 "Vereinsverhandlungen," (1858), 105. Original: "*Förderung des Nationalwohlstandes.*"

71 "Vereinsverhandlungen," (1858), 105. *Morgen* is a historic German measurement.

72 "Vereins-Verhandlungen," *ZfA* 4 (1861): 127.

73 "Ueber die Beschaffung zweier Angoraböcke und eines ägyptischen Ziegenpaares," *ZfA* 2 (1859): 228–235.

74 "Verzeichnis," *ZfA NF* 8 (1870): 19–24.

a suitable garden for extensive experimentation. Both the KPAV and the CIAD had small gardens, with the CIAD garden at the Moabit Prison in Berlin being kept after the merger. Plans of obtaining a larger garden, which had become more urgent after they had to give up the Moabit plot in 1868, repeatedly failed.[75] Instead, they had to rely on members and honorary members of the society to provide substitutes. However, these arrangements were never permanent, and the Berlin Society was never able to keep a garden comparable to Paris, which, among other animals, kept hippopotamuses.[76]

The Berlin Society also attempted to establish closer connections with the Prussian state to support their ventures, although they did not receive as much support as they had wished. In 1859, they requested that their interests be represented by a scientist during the Prussian East Asia Expedition, that led to unequal treaties between Prussia and Japan and China. The government did not heed this request, as the society only learned in 1861.[77] Still, they continued to seek closer ties with the government. In 1864, Bismarck notified the society that he would inform the missions and consulates abroad of the society and their activities and ask them to look for plants and animals suitable for introduction in Prussia.[78]

Diplomatic missions were only one part of the society's vast network of both personal and institutional connections spanning the globe, through which it acquired the seeds and animals. Apart from their ties to Prussian and later German diplomats, through whom they obtained seeds, for example, from Barcelona, Florence, and Cairo, they also maintained contact with foreign diplomats, receiving seeds from a Persian diplomat in 1858.[79] Key to maintaining the network were their members, who not only lived in Prussia or the German Empire but all over Europe and beyond.[80] As such, in 1870, the Berlin Society had members living in Paris, Moscow, Algiers, Hong Kong, and

75 Leopold Buvry, "Bericht über die Thätigkeit des Akklimatisations-Vereins in Berlin im Jahre 1873," *ZfA* 12 (1874): 30; Leopold Buvry, "Bericht über die Thätigkeit des Akklimatisations-Vereins in Berlin im Jahre 1871," *ZfA* 10 (1872): 29.

76 Anderson, "Climates," 144.

77 Geheimes Staatsarchiv Preußischer Kulturbesitz, III. HA MdA, II, Nr. 5065 – Handels- und Schifffahrtsverhältnisse mit China, B – Aug. 1859 – Sep. 1859, 66; "Vereins-Verhandlungen," (1861), 127–128.

78 "Verhandlungen des Akklimatisationsvereins in Berlin," *ZfA NF* 2 (1864): 16.

79 "Vereinsverhandlungen," *ZfA* 1 (1858): 43; "Vorstandssitzungen," 132–136.

80 In 1870, the Berlin Society had the following numbers of individual members: 173 living in what would be the German Empire, 75 living in other parts of Europe (including the Russian Empire), and 16 living outside of Europe (including those living in European colonies). Additionally, 93 societies were also members, with 88 of those being societies in what would be the German Empire and 5 from other places in Europe. These demographics were compiled by the author from "Verzeichnis der Mitglieder des Akklimatisations-Vereins in Berlin," *ZfA NF* 8 (1870): 4–16.

Chile, among other places, who often assisted the society by sending seeds.[81] Many of them worked for scientific institutions, and in their positions, most likely helped maintain ties to the Berlin Society. Among the members in 1870 were the director of an experimental garden in Algeria, the director of the Marseille Zoo, and the director of the botanical gardens in Tbilisi. From Tbilisi, for example, in that year, the society received a package of tree and legume seeds, which they distributed among their members.[82]

Further, they were in close contact with other acclimatisation societies and exchanged plants and animals with them. The closest ties were to the French Society, from which they, among other things, received potatoes and the highly coveted Angora goats.[83] Within this international network, not only animals and plants but also knowledge circulated. The Berlin Society regularly reported on acclimatisation efforts all over the world, used its connections to gather knowledge on unknown plants and animals, and exchanged publications with other scientific institutions, including the Smithsonian Institution in the US.[84] Considering the nationalist narrative, this international cooperation may seem surprising. Borowy describes this approach as a "pragmatic internationalism": International cooperation was essential to their project, and the society in 1869 even sought to expand its ties, so the nationalist aims had to coexist with it.[85] Even the Franco-Prussian War (1870–1871) did not change this approach. While there was some nationalist posturing both in the Berlin and the French societies, they kept close connections, continuing to circulate knowledge and items.[86] It is important here to point out, that while pragmatism fuelled this international exchange, the members' genuine scientific interest and their understandings of scientific practice also contributed to it. In fields like botany, international scientific exchange had for long been a common scientific practice and was part of the self-conception as scientists.[87] This practice of scientific exchange though, as historian Katja Kaiser points out, could of course be used in the pursuit of colonial-expansionist, economic and national aims, as this case study illustrates.[88]

81 "Verzeichnis der Mitglieder des Akklimatisations-Vereins in Berlin," 4–16.

82 L. Buvry, "Bericht über die Thätigkeit des Akklimatisations-Vereins in Berlin im Jahre 1869," *ZfA NF* 7 (1869): 27.

83 "Vereins-Verhandlungen," *ZfA* 2 (1859): 115.

84 "Vereins-Verhandlungen," *ZfA* 4 (1860): 124.

85 Borowy, "Akklimatisierung"; Borowy, "Bio-Invasion," 158.

86 Borowy, "Bio-Invasion," 161–162; "Verhandlungen des Akklimatisationsvereins in Berlin," *ZfA NF* 9 (1871): 94.

87 Katja Kaiser, *Wirtschaft, Wissenschaft und Weltgeltung: Die Botanische Zentralstelle für die deutschen Kolonien am Botanischen Garten und Museum Berlin (1891-1920)* (Peter Lang, 2021), 68.

88 Kaiser, *Zentralstelle*, 68.

Unlike the French and British societies, the Berlin Society was not involved in any Prussian or German colonial efforts. It existed before the period of formal German colonialism. No colonial ambitions were mentioned in the *ZfA*, and even the colonial holdings of other countries were rarely mentioned. Despite this, the Berlin Society was not detached from European colonialism. Through its international network, it directly profited from other countries' colonial holdings by receiving seeds from them. The Berlin Society was part of a broader European system of knowledge, science, and exchange that actively participated in and supported colonialism and imperialism.

Overall, however, the Berlin Society fell short of its relatively lofty ambitions. Neither it nor the broader acclimatisation movement in Europe brought significant changes to agriculture, nor did they alter the European landscape.[89] The Berlin Society also never managed to turn acclimatisation into a "mass-movement."[90] While encyclopaedia entries from the 1860s suggest that acclimatisation societies had some impact on the general discourse, their work was never described there as being as promising as it was in the *ZfA*.[91] A more sceptical entry from the late nineteenth century mentioned the introduction of Italian and Egyptian bees to Prussia, in which the Berlin Society was involved, as one of the few successful examples of acclimatisation, without referencing the Berlin Society itself at all.[92] Indeed, the only mention of it occurred in 1874 in *Meyer's* encyclopaedia, which specifically pointed out the society's financial limitations. At this time, the society was already in decline due to financial issues, stagnating membership, the high cost of their efforts, in addition to challenges posed by a lack of government support, a suitable garden, and discernible results.[93] The paucity of subsequent publications and mentions indicates that the society disbanded in the late 1870s.

Conclusion

In the second half of the nineteenth century, acclimatisation studies flourished in Europe, its colonies, and other parts of the world. Acclimatisation societies sought to introduce foreign plants and animals to their respective regions.

89 Borowy, "Akklimatisierung."

90 Borowy, "Akklimatisierung."

91 "Acclimatisation," in *Allgemeine deutsche Real-Encyklopädie für die gebildeten Stände. Conversations- Lexikon. 1. Band: A – Arad*, 11th ed. (Brockhaus, 1864), Google Books, 130–132.

92 "Akklimatisation," in *Meyers Konversations-Lexikon. Ein Nachschlagewerk des allgemeinen Wissens. 1. Band: A – Aslang*, 5th ed. (Bibliographische Institut, 1893), Internet Archive, 266.

93 "Akklimatisation," in *Meyers Konversations-Lexikon. Eine Encyklopädie des allgemeinen Wissens. 1. Band: A– Asiatische Türkei.*, 3rd ed. Bibliographisches Institut, 1874. Google Books, 294; Borowy, "Akklimatisierung"; Borowy, "Bio-Invasion," 162.

The contexts in which the specific societies emerged, their understanding of acclimatisation, and their aims differed. In Prussia, such a society existed in Berlin, including its predecessors, from 1856 to at least 1874. My analysis of the Berlin Society's publication has shown that it understood acclimatisation to be a process, a method, and a science. As a process, it was understood to mean the introduction of an organism into a new climate and its subsequent adjustment, which could lead to changes in the organism. The Berlin Society, like its French counterpart to which it maintained close ties, adhered to a transformist understanding of acclimatisation, meaning that they believed that the introduction of an organism into a new climate and its subsequent adjustment could lead to changes in the organism. While the society did engage in contemporary scientific debates on climate and biogeography, it never developed a coherent theory of acclimatisation, and in its practical approach was more concerned with acclimatisation as a method.

The Berlin Society emerged in the context of rising German nationalism and a quest for defining and creating a unified German nation, increasing industrialisation, growing population, and a rising interest in the natural sciences. While acclimatisation was portrayed as a charitable pursuit, the society viewed it mostly as a patriotic activity and a marker of civilisation. The aim of their efforts was primarily to improve the nation's wealth. Contrary to its French and British counterparts, it was not involved in any (settler) colonial projects, nor did it voice colonial ambitions. Indirectly, though, the Berlin Society was connected to colonialism and other countries' colonial efforts through an interpersonal and interinstitutional international network of knowledge and exchange, which enabled its activities. Further, this network itself, and many of the ideas that circulated within it, were conditioned by colonialism. Thus, while the Prussian case study necessitates some qualifiers in Osborne's argument that acclimatisation studies were tied to the pan-European phenomenon of settler colonialism, it does not invalidate it.

A complementary framing of acclimatisation to Osborne's, I have argued, can be Jason W. Moore's Cheap Nature. The activities of the Berlin Society and the acclimatisation movement as a whole—at least within Europe—can be understood as a quest for Cheap Nature. Humans were clearly seen as mastering nature, from which resources had to be extracted. Through the means of science, and in some cases, empire, the societies tried to obtain a cheaper source of food for their growing populations, appropriating free, extra-human natures in the form of plants and animals. In what way this framing also applies to societies outside of Europe, which, as pointed out in the introduction, had differing aims, requires further study.

This case study thus provides insight into nineteenth-century European understandings of nature and the networks of science and knowledge that formed. It also adds to the growing literature on the history of the concept of climate and other related concepts, such as David Livingstone's *Empire of Climate* or Eva Horn's *Klima: Eine Wahrnehmungsgeschichte* which while they discuss acclimatisation, focus only on human acclimatisation.[94] Future research could try to bring the discourses on human acclimatisation and plant and animal acclimatisation together to look for commonalities and differences between the two. Further fruitful research avenues could focus particularly on the transnational aspect of acclimatisation and on the interconnections between the societies as well as on the decline of acclimatisation and the evolution of the concept until today.

94 Livingstone, *Climate*, 76–121; Horn, *Klima*, 171–192.

A Bitter History: Biopolitics on Ceylon's Coffee Plantations

ABSTRACT

In the late nineteenth century, the rise of fungi diseases on coffee plantations throughout British Ceylon resulted in the collapse of Ceylon's coffee economy. The spread of the *Hemileia vastatrix* fungus was made possible by profit-oriented cultivation techniques that included the felling of biodiverse forests and the implementation of monocultures. Previous research on Ceylon's plantations looked at Britain's policies through a socioeconomic lens, focusing on the intersection between colonial racism and capitalism. Rightfully so, historians condemned the harsh labour conditions for local labourers on coffee plantations. Foucault's concept of biopolitics has regularly been applied to address racist hierarchies. From an environmentalist standpoint, this paper intends to provide an alternative to anthropocentric human-centred histories. It does so by bringing Foucault's biopolitics into a conversation about more-than-human actors on plantations such as fungi and coffee plants. The colonial agriculture manuals written by British colonial administrators and scientists are leading in the analysis of how plantations were shaped according to their human-centred, capitalist, and racist rationale. With precision, they describe the desired location of plantations, how labour should be organised, how plants should be cultivated, and how the *H. vastatrix* should be exterminated. Additionally, the data from these manuals is incorporated by the author into a set of thematic maps that illustrate the downfall of Ceylon's coffee production from a geographical perspective. This research adds to the historiography on colonial agriculture and Ceylon's coffee production in particular by showing the reciprocal relationship between human actions and those of more-than-human actors.

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Introduction

> The blossoming is the most beautiful sight that greet the planter's gaze. … His fields are covered with full-blown flowers, white as flakes of driven snow, loading the air with the most fragrant perfume.[1]

One finds this nearly poetic quote in *The Coffee Planter's Manual* (1880) by the British botanist Alex Brown, who was active in British Ceylon as a coffee planter.[2] Brown takes the aspiring coffee planter by the hand, introducing him to the art of coffee cultivation. British Ceylon had become the world's major coffee producer by the mid-1800s and is, therefore, at the centre of his manual. Ironically, contrary to Brown's romantic description, Ceylon's plantations had been plagued by a fungus disease for over a decade already. The *Hemileia vastatrix* fungus induced coffee rust disease, caused farmers to face lower yields, and led to the eventual deterioration of affected plants. The fungus wreaked havoc wherever it came, and the island's plantations were almost all abandoned before the turn of the century.[3]

Brown's manual is one of the many nineteenth-century documents written by British colonial administrators and scientists. They describe elaborately how forests were exchanged for extensive coffee plantations, how labour was dealt with, and detailed the supposedly correct approach to plant diseases. In this primary source material, one finds numerous examples of the British colonial philosophy that put non-Western and more-than-human actors in inferior positions.[4] The "comparatively weak physique" of the native in contrast to the "naturally more robust European," as described by entrepreneur Edmund Hull, is illustrative of a colonial racism.[5] Moreover, to hunter and coffee producer Samuel Baker, the island's dense forests were mostly an "obstacle" that would have caused "inexpressible disappointment" to the hunting "sportsman."[6]

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1 Alex Brown, *The Coffee Planter's Manual* (Colombo: Ceylon Observer Press, 1880), 41.

2 Brown, *The Coffee Planter's Manual*, 41.

3 Stuart McCook, "Global Rust Belt: *Hemileia vastatrix* and the Ecological Integration of World Coffee Production Since 1850," *Journal of Global History* 1, no. 2 (2006): 177–178.

4 References to this colonial philosophy can be found in the following works, see Samuel W. Baker, *The Rifle and the Hound in Ceylon* (Philadelphia: J.B. Lippincott & Co., 1875); Edmund C. P. Hull, *Coffee Planting in Southern India and Ceylon* (London: E. & F.N. Spon, 1877); Brown, *The Coffee Planter's Manual;* Edwin Lester Arnold, *Coffee: Its Cultivation and Profit* (London: W.B. Whittingham & Co., 1886).

5 Hull, *Coffee Planting in Southern India and Ceylon*, 49. This edition bundles the first edition of his work in 1865 and additional notes added in 1877.

6 Baker, *The Rifle and the Hound in Ceylon*, 25.

Contemporary environmental scholars have widely criticized this colonial thinking. The historian James Duncan discusses how racist ideas in colonial philosophy reflect environmental determinism. That is, the "reduced mental capacities" of people in Ceylon would have been a product of the inherently unhealthy tropical climate. Seeing colonialism as a civilizing mission, the British aimed to replace "backward" local traditions of mixed subsistence gardening with Western "rational" monocultures. Duncan stresses the saturation of enlightened ideas of "rationality" in the British approach to agriculture.[7] Similarly, the scholar Ravi Rajan argues colonial monocultures to have been a system of "quantification and economic rationalization."[8]

Following increasing interest in environmental change, most scholarly publications on Ceylon's coffee production stem from the twenty-first century. Essentially, the knowledge production on colonial agriculture has its centre in anglophone academia. Western voices strongly dominate the archives historians have at their disposal. This counts for both contemporary literature and the nineteenth-century primary sources. The latter were written solely by men who were higher up in the colonial administration such as owners of plantations or scientists. The silence in the archives thus has a racialised and gendered character. Despite this silence, the colonial sources are useful in explaining the British belief of their superiority over Ceylon's people and environment.

In literature about human labour on plantation sites, French philosopher Michel Foucault's theory of biopolitics is reoccurring. Foucault discusses how power structures settle in the everyday lives of people and subject their bodies to what he calls "biopower."[9] In his words, "biopolitics deals with the population as a social problem that is at once scientific and political."[10] Duncan applies biopower to explain the worsening health of native labourers under the colonial regime.[11] In addition, Christine Quinan broadens the definition of biopower beyond humans to a "systematic monitoring and regulation of living organisms."[12] Quinan mentions that "biopolitics" and

7 James S. Duncan, *In the Shadows of the Tropics: Climate, Race and Biopower in Nineteenth Century Ceylon* (Aldershot, 2006), 1–2, 7–8.

8 Ravi Rajan, "Imperial Environmentalism or Environmental Imperialism? European Forestry, Colonial Foresters and the Agendas of Forest Management in British India, 1800-1900," in *Nature and the Orient: The Environmental History of South and Southeast Asia*, ed. Richard H. Grove, Vinita Damodaran, and Satpal Sangwan (Oxford University Press, 1998), 327.

9 Michel Foucault, *Society Must Be Defended: Lectures at the Collège de France, 1975-1976,* trans. David Macey (Picador, 2003), 245.

10 Foucault, *Society Must Be Defended*, 245.

11 Duncan, *In the Shadows of the Tropics,* 20–23.

12 Christine Quinan, "Necropolitics," in *Posthuman Glossary,* ed. Rosi Braidotti and Maria Hlavajova (Bloomsbury Publishing, 2018): 270–272.

"necropolitics" are two sides of the same coin.[13] That is, power structures do not only indicate which bodies are legitimate to live (biopolitics), but also which are not (necropolitics). This paper will show that in Ceylon, colonial biopower ordered that the coffee plants were meant to live while the fungi were meant to die.[14]

Undoubtedly, the *H. vastatrix* is to blame for the downfall of Ceylon's plantations. This history is, however, more complex. Foucault's thinking about biopolitics and necropolitics reveals a complicated philosophy behind the practices of a plantation economy; a philosophy with little consideration for more-than-human agency. Therefore, this paper questions what caused the sharp decline of Ceylon's coffee production in the late nineteenth century. It argues that an analysis of human and more-than-human biopolitics is essential to understanding this historical change. Scrutinizing the more-than-human agency under the structures of biopower is of added value to the historiography. It proves that humans do not act in isolation, but rather interdependent networks that include other life forms.

The first chapter, "A Plantation Logic," zooms in on the transformation of biodiverse forests into monotonous plantations. It aims to understand the reasoning through which Ceylon's plantations were given shape. Herein, the central concept is a "plantation logic," borrowed from Maan Barua's *Plantation Worlds.*[15] This human geographer scrutinizes British plantation policies in Assam, India. A plantation logic is a set of principles that lies at the root of plantations as sites of dehumanization and natural resource exhaustion.[16] In a similar manner, taking the colonial manuals as reference works, a plantation logic of coffee cultivation in Ceylon is explored. The chapter is ordered chronologically: from forest to field to complete plantation.

The second chapter, "The Fungal Moment," deals with how the *H. vastatrix* came to life. The epidemic, despite its span over the 1870s and 1880s, is taken as a historical moment that was conclusive for Ceylon's coffee economy. Mycologist Nicholas Money provides essential knowledge on the behaviour of fungi as active actors.[17] In response to the fungus, British farmers added shade, moved their production to higher elevations, and applied biochemicals. The insights from mycology helps to understand why these

13 Quinan, "Necropolitics," 270–272.

14 Quinan, "Necropolitics", 270–272.

15 Maan Barua, *Plantation Worlds*, (Duke University Press, 2024), 28.

16 Barua, *Plantation Worlds*, 28.

17 Nicholas Money, *The Triumph of the Fungi: A Rotten History* (Oxford University Press, 2007), 52–56.

strategies had little to no success.[18]

Inevitably, the environmental historian struggles with the human-centredness of language. It is necessary to make phrasings more sensitive to actors that are not human. Two examples are mentioned here. First, this paper uses "more-than-human" to describe the forests, plants, and fungi in this history. It stresses the possible experiences beyond the human scope and avoids the dichotomy between "human" and "natural" as the term "non-human" implies. Second, talking about biopower inevitably involves discussing the "bodies" subjected to it. In this paper, "body" is taken to indicate both human bodies and more-than-human bodies alike.[19]

A Plantation Logic

I. Defining a Plantation Logic

The colonial plantation was a complex system with a variety of actors upon which the colonial regime put its mark. In his study of Assam's plantations, Maan Barua introduces a plantation logic to designate the conventions behind the violent spaces that colonial plantations had become.[20] To Barua, there is no such thing as "one" plantation logic since it is experienced differently by different actors in different geographies. This paper consistently follows the indication of the concept with an indefinite article. Barua defines a plantation logic as follows:

> A "plantation logic" is a system or set of principles underlying the arrangement of elements that foster and operate via the violent "planting" of people considered subordinate in colonial and racial hierarchies as cheap labor to bolster crop economies, the transformation of land purportedly seen as belonging to no one to the services of a racial and colonial economy, and a deep dispossession and dehumanization of people.[21]

At the core of this definition is a system that treated the native labourers on plantations violently. To Barua, colonialism and racism are two intertwined concepts. Simultaneously, Barua gives space to an understanding of more-than-human actors affected by a plantation logic. Since Ceylon's fertile hill landscape had belonged to no one in the colonisers' eyes, it could easily be annexed and commodified. With social, cultural, and economic codes of

18 Arnold, *Coffee: Its Cultivation and Profit*; Money, *The Triumph of the Fungi*, 50–77.

19 Barua, *Plantation Worlds*, 16.

20 Barua, *Plantation Worlds*, 28.

21 Barua, *Plantation Worlds*, 28.

conduct as part of its definition, a plantation logic reflects a system that is profoundly historical.[22]

The capitalist appropriation of natural resources is addressed by Jason W. Moore's Marxist critique. In *Capitalism in the Web of Life,* Moore states that "capitalism depends on strategies for appropriating the unpaid work/energy of human and the rest of nature."[23] Making a profit over Ceylon's natural resources is a form of adopting unpaid labour. The transformation of forests into coffee plantations is what Moore calls the use of "Cheap Nature." While the land was intensively used for little cost, the British benefitted from the competitive advantage of their product on the European market. Cheap, however, did not mean cheap in the long run since many coffee farmers paid the high price of bankruptcy for their monocultures.[24] Barua historicizes Moore's theory stating that "the production of cheap natures cannot be cleaved from the ravages of race and colonialism."[25]

II. The Colonial Manual as a Genre

The nineteenth-century source material is infused with references to a plantation logic. Four sources are worth mentioning here. *The Rifle and the Hound* (1875) is a travel account of Samuel Baker's hunting expedition in Ceylon.[26] Although not touching upon coffee much, it includes critical opinions on the people and the environment. Then, three relevant manuals are *Coffee Planting in Southern India and Ceylon* (1877) by Edmund Hull, *The Coffee Planter's Manual* (1880) by Alex Brown, and *Coffee: Its Cultivation and Profit* (1886) by Edwin Arnold.[27] Despite their remarkable enthusiasm for the coffee enterprise, these works all stem from a period in which coffee rust had been frustrating farmers throughout the island for years on end.

A closer look should be taken at the agriculture manual as its own genre within colonial literature. Rather than telling a story, manuals were meant to teach novel planters how to cultivate their crops and to update farmers on technological advances in the agricultural field. Indeed, Hull encourages

22 Barua, *Plantation Worlds*, 28.

23 Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (Verso, 2015), 53–54.

24 Moore, *Capitalism in the Web of Life*, 53–54. In his introduction, Moore elaborates on four forms of Cheap Nature: (1) low-cost food, (2) labour power, (3) energy and (4) raw materials.

25 Barua, *Plantation Worlds*, 25.

26 Baker, *The Rifle and the Hound in Ceylon*; Hull, *Coffee Planting in Southern India and Ceylon*; Brown, *The Coffee Planter's Manual*; Arnold, *Coffee: Its Cultivation and Profit.*

27 Hull, *Coffee Planting in Southern India and Ceylon*; Brown, *The Coffee Planter's Manual*; Arnold, *Coffee: Its Cultivation and Profit*.

"young planters to derive an equal proportion of practical benefit."[28] Similarly, Brown's preface states "it is to be hoped that the whole will be found most useful and suggestive to the young planter as well as to all interested in the chief industry of Ceylon."[29] The manuals distinguish themselves from other colonial sources in their step-by-step approach to coffee cultivation. Their subsections deal with a variety of topics such as "how to fell a tree," "how to build a bungalow," or "how to do the bookkeeping."[30]

Instead of seeing the manuals as independent or objective, they should be historicized for their role as tools of colonialism. The references to knowledge production in British academic societies such as the Royal Agricultural Society and the Chemical Society were frequent. In his case study on timber production, Barua describes plantations as "places where imperial sciences of calculation, control, and profit … were practiced and furthered."[31] This corroborates the argument that colonial authors felt an epistemological superiority over Ceylon's natives. Local knowledge systems were to be replaced by knowledge from European institutions. Hull dismisses native knowledge by suggesting that the natives merely cultivated coffee "with the view of obtaining its fragrant white blossom for the decoration of temple shrines."[32] Similarly, the statement that "the natives exhaust the soil" with their cultivation techniques shows Baker's distrust of their agricultural knowledge.[33] Imposing these manuals as blueprints on Ceylon's soil and people thus silenced native knowledge.

III. Four Categories of a Plantation Logic

The manuals list a range of steps that planters were expected to follow if they wished to start a successful plantation. The subsections dealt with by the authors are too numerous to fit this chapter. Therefore, the most relevant elements to illustrate a plantation logic are analysed in four chronological categories: the location of the plantation, the clearing of the forest, the organisation of a (more-than-human) labour force, and the estate's administration. In this overview, the sharp observer might miss the treatment of pests like the *H. vastatrix.* Although this topic is elaborately discussed in the manuals, it finds a place in the second chapter regarding the fungus epidemic.

28 Hull, *Coffee Planting in Southern India and Ceylon*, viii.

29 Brown, *The Coffee Planter's Manual*, no page number.

30 Hull, *Coffee Planting in Southern India and Ceylon*; Brown, *The Coffee Planter's Manual.*

31 Barua, *Plantation Worlds*, 26.

32 Hull, *Coffee Planting in Southern India and Ceylon*, 19.

33 Baker, *The Rifle and the Hound in Ceylon*, 130.

The authors agree that choosing the right elevation is crucial for the success of a plantation. Low elevations are too hot and too humid for coffee plants to thrive. In higher altitudes, the plants find a climate that is too cold. In 1865, Hull writes that at an elevation ranging from 2,500 to 3,500 feet, his "favourite and most fruitful" plantations are situated.[34] Between 500 and 5,000 feet, coffee estates under cultivation can be found. However, Hull adds that the trees above 4,000 feet have a "gloriously healthy appearance but hardly bear any crop."[35] On the low-lying plantations, then, coffee is only found growing under the shade of larger trees to withstand the heat of the midday sun. Benefitting from the cooler morning sun, an orientation to the east or northeast is recommended in the manuals. Moreover, the plantations on the eastern slopes are spared from the heavy rains and strong winds of the southwest monsoon.[36]

The climatic conditions demanded in the manuals not only limited the possible locations of the coffee plantations, but also subjected Ceylon's landscape to a form of commodification. That is, the hills were not only perceived as a geography in which to make a profit but, even more, as a place in which profit could be maximised. Hull's descriptions of the "most favourable conditions" tell more about the quest for capital accumulation than about the plant's habitat.[37] After all, although coffee plants easily grow outside of the 2,500–3,500 foot range, these areas lack the label of "favourable" or "suitable" because they are not "favourable" or "suitable" for maximum yield and maximum profit.[38] Besides that, the authors do not mention the human nor the more-than-human inhabitants of Ceylon's hills, let alone how plantations could affect them.

The three maps below have been carefully put together using the geographic information system QGIS. Maps help to visualize the topography of a plantation logic. They turn abstract measurements and toponyms from the source material into a comprehensive image. Map 1.1 displays the elevation map of Ceylon on which the mountain range in the centre-south of the island is clearly visible. Map 1.2 visualizes Hull's altitude criteria showing the regions suitable for cultivation in light green and the areas containing his "favourite and most fruitful plantations" in dark green.[39] The absence of plantations in coastal regions confirms the difficulty of growing coffee in lowland regions.

34 Hull, *Coffee Planting in Southern India and Ceylon*, 43.

35 Hull, *Coffee Planting in Southern India and Ceylon*, 40.

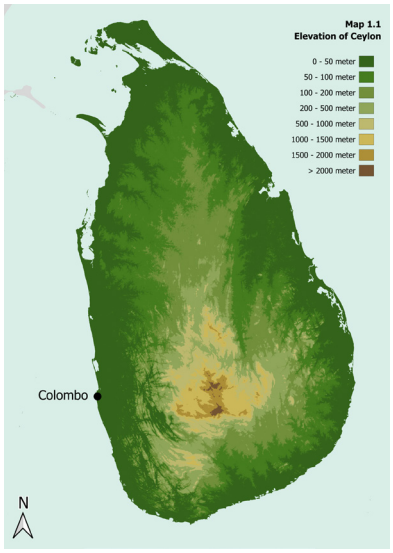
36 Hull, Coffee *Planting in Southern India and Ceylon*, 39–43.

37 Hull, Coffee *Planting in Southern India and Ceylon*, 39.

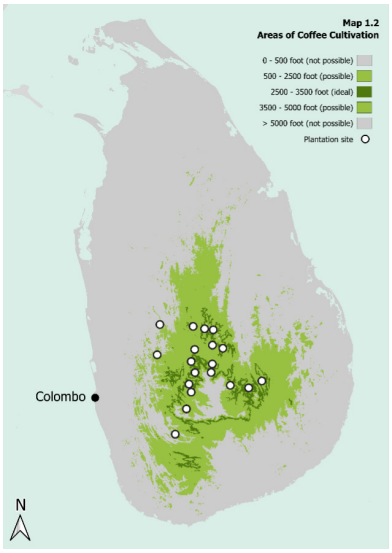
38 Hull, *Coffee Planting in Southern India and Ceylon*, 39; Brown, *The Coffee Planter's Manual*, 9–10.

39 Hull, *Coffee Planting in Southern India and Ceylon*, 43.

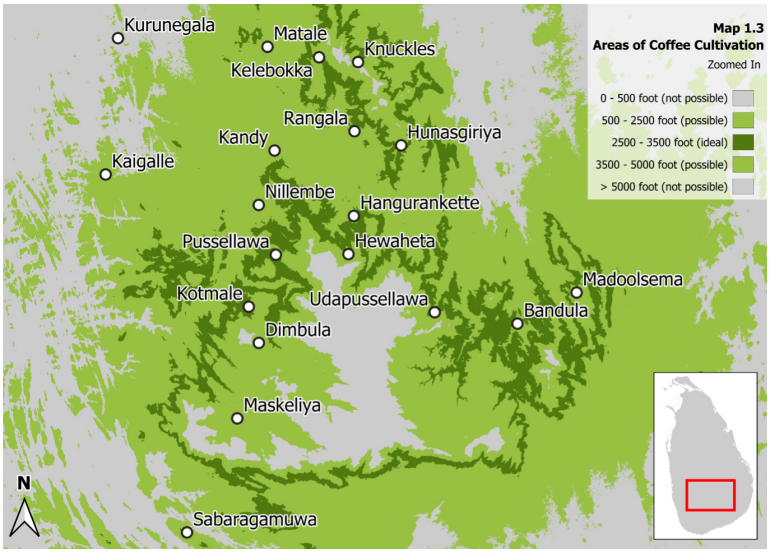
Lastly, Map 1.3 zooms in on Ceylon's coffee region. The vast majority of the coffee plantations indeed lie within Hull's range. The toponyms do not refer to individual plantations but to a settlement or village around which multiple plantation sites were established.[40]



Map 1.1
Elevation of Ceylon



Map 1.2
Areas of Coffee Cultivation



Map 1.3 Areas of Coffee Cultivation – Zoomed In

As to a logic of clearing the forest, Brown fosters a structural division of the slopes into subsections. He instructs that incisions should be made in

40 Toponyms have been gathered from Hull (1877), Brown (1880) and Arnold (1886) (see notes 5, 1, and 18). Mapping software: QGIS Development Team, *QGIS Geographic Information System*, v. 3.34.13, Open Source Geospatial Foundation, released 2024, https://qgis.org. Geospatial data: OpenTopography, Copernicus Global 30m Elevation Data (Copernicus DEM), accessed February 20, 2025, https://opentopography.org.

the trees growing lower on the slope: deep enough to destabilize the tree but superficial enough to not make it fall. The work is finished when the highest trees are chopped down, taking the already weakened trees with them in their fall. Brown describes this as "a thrilling moment" that has something "majestically grand."[41] Once chopped into pieces and left to dry for a month, the logs and branches are ready to be set on fire.[42] Arnold prescribes a similar procedure but is more elaborate on the ideal size of a clearing and the instruments needed for marking and measuring the forest.[43] Neither of the authors raise concerns about the consequences for the more-than-human life forms in the forest.

Two relevant remarks are made by contemporary scholars. First, the structured approach to the cutting of timber resembles what scholar of forestry Ravi Rajan has called the "quantification and economic rationalization" of forestry.[44] He draws a line from seventeenth-century German forestry practices to the policies of the British in their colonies. Rajan argues that the rationalization of forestry as a scientific field paved the way for monocultures.[45] An example of quantification and rationalisation in the manuals are the exact measures prescribed to structure the rows of coffee plants and the drainage canals. The mathematical precision behind the plantation's setup was meant to benefit the efficiency and profitability of the cultivation process. Structuring plantations through numbers and diagrams was also of aesthetic importance. Brown wrote, "it looks neater and prettier to have the rows all leading in one direction."[46]

Environmental scholar Paulo Tavares historicizes the European approach to forestry. In European humanist and Enlightenment thinking, "forests were seen as landscapes opposed to the human."[47] Not only did forests become subjects of scientific reason or rationalisation, but also of economic utilitarianism. In the European mind, the forest was "a natural resource to be rationally domesticated."[48] Linking the colony's jungle with concepts like "dark," "unsocial," and "pre-civilised," the colonial perspective on forests was coupled with moral discourses of social evolution and the racial inferiority

41 Brown, *The Coffee Planter's Manual*, 6.

42 Brown, *The Coffee Planter's Manual*, 5–7.

43 Arnold, *Coffee: Its Cultivation and Profit*, 69-76.

44 Rajan, "Imperial Environmentalism or Environmental Imperialism?," 327.

45 Rajan, "Imperial Environmentalism or Environmental Imperialism?," 324–328.

46 Brown, *The Coffee Planter's Manual*, 13.

47 Paulo Travares, "Forests," in *Posthuman Glossary*, ed. Rosi Braidotti and Maria Hlavajova (Bloomsbury Publishing, 2018), 163.

48 Travares, "Forests," 163.

of those inhabiting the space.[49] Duncan links the Enlightenment thinking to colonial biopower in Ceylon. He argues that "governmentality and biopower depended upon a hegemony of vision and knowledge necessary for political domination and the mastery over nature."[50]

This racist approach to Ceylon is easily deducted from the primary sources. The racist disdain is blatant. Baker calls the Vedda, a people in Ceylon's mountain region, "extremely ugly" and their children "squalid and miserable."[51] To the colonisers, racial characteristics mark the divide between the Tamil and the Sinhalese people. Whereas the Sinhalese inhabited Ceylon before the European colonisation, many Tamils came to Ceylon as imported labour from British India.[52] Despite constituting a highly needed work force, the Tamils were regarded as less valuable because of their perceived "slenderness" and "lack of expertise." However, Brown adds, "the Sinhalese have an aversion to steady labour."[53] Therefore, the Tamil were expected to be the better pickers of coffee berries. To Baker, the Sinhalese would have "no character to work upon."[54] To avoid a change of climate, "hill-men" who were used to mountainous situations were the most desirable workers.[55]

This conceptualisation of the natives as weak, childish, or feminine led to a plantation logic in which authoritarian rule was deemed necessary to structure the work. Berries had to be picked, drainages had to be dug, and storage buildings had to be built. The layout of the plantation enabled the continuous supervision of the labourers. Brown recommends, "the lines of coffee should be made to run all one way … it being the most workable and the labourers being always visible to the superintendent."[56] Arnold tells new planters "to get as much work out of them as he reasonably can without being unduly harsh."[57] A plantation logic commodified the native people as cheap labour who received little in return for their lengthy workdays.

Duncan refers to plantations as "sites where new methods were sought to manage, discipline and regulate populations of migrant labourers."[58] It is in these spaces that racial biopower is exerted on the lives and bodies of natives.

49 Travares, "Forests," 162–164.
50 Duncan, *In the Shadows of the Tropics*, 1–2.
51 Baker, *The Rifle and the Hound in Ceylon*, 104.
52 Duncan, *In the Shadows of the Tropics*, 17.
53 Brown, *The Coffee Planter's Manual*, 4.
54 Baker, *The Rifle and the Hound in Ceylon*, 73.
55 Hull, *Coffee Planting in Southern India and Ceylon*, 71.
56 Brown, *The Coffee Planter's Manual*, 13.
57 Arnold, *Coffee: Its Cultivation and Profit*, 40.
58 Duncan, *In the Shadows of the Tropics*, 7.

European reason-based science supported the environmental deterministic claims that a tropical climate would inevitably bring forth degenerated people. Duncan writes that "the perceived frailties of the South Asian body justified a despotic and paternal colonial rule."[59] Biopower arose in the late eighteenth century as a rational intervention to discipline the individual and social body. In Ceylon, this discipline meant incorporating the native's body into a violent plantation economy that could only survive on the accumulation of profit. Arnold approaches this discipline as follows: "Get as much work out of them as he reasonably can without being unduly harsh, for in that case they would bolt, his estate would get a bad name, and he would be left entirely without labour."[60]

While European scientific theories of social evolution justified the governing of Ceylon's people, the science of botany justified the structured cultivation of coffee plants in monocultures. Barua phrases the work done by plants as "vegetal work."[61] The plants invest energy in the production of coffee, an energy that is commodified and exhausted in a plantation logic. The growth of the plant in itself should, however, not be called "work." Rather, says Barua, it is the "valorisation of its activity for a particular economic sector" that puts the plant to labour.[62] The coffee plant is cultivated in a specific historical condition, that is, the human-centred colonial plantation.[63]

The unnatural growth regime to which the coffee plants were subjected brings in the narrative of biopolitics. First of all, the trees were planted in an environment different to their usual habitat. Moreover, they were cultivated in straight lines, frequently manured, and kept on a height ideal for workers to pick the berries. The latter is called "topping." It is described by Hull as keeping "the height of the plant within limits at which it can be conveniently dealt with by the coolies."[64] This performance of biopower is what Barua calls "anthropo-ontogenetic" pruning: growing a vegetable body "such that it maps onto a labouring worker's body."[65] Barua stresses that the biopower in a plantation logic—in the case of both human and more-than-human actors—is asserted in the historically specific context of racial colonialism. This is a criticism of Foucault's universalist approach to biopower.[66]

59 Duncan, *In the Shadows of the Tropics*, 23.
60 Arnold, *Coffee: Its Cultivation and Profit*, 40–41.
61 Barua, *Plantation Worlds*, 37.
62 Barua, *Plantation Worlds*, 37.
63 Barua, *Plantation Worlds*, 37–38.
64 Hull, *Coffee Planting in Southern India and Ceylon*, 222.
65 Barua, *Plantation Worlds*, 38.
66 Barua, *Plantation Worlds*, 56.

The last relevant principle behind a plantation logic is the elaborate administrative work to run a plantation. The manuals tell their readers all about the calculating of costs, revenues, and rainfall. The development of the global coffee price is closely watched as well as the yearly rainfall and the ideal height to which the trees should be pruned. Hull shows what costs and revenues new planters can expect up to seven years after establishing a new plantation. The mathematics behind this administration relates to what Rajan calls "sustained yield."[67] The frequent calculations, originally adopted to secure a consistent profit from the timber in Germany's forests, are used in Ceylon to secure a consistent yield on the plantations. Interestingly, a decade after Hull, Arnold only dares to give estimates over a three-year period. This seems to be a sign of the growing insecurity over the plantations' future. In any case, seeing the coffee economy's downfall, the expected revenues must have turned out highly inaccurate.[68]

A plantation logic, even when only briefly explored in this chapter, has proven to be historically complex. Uncovering the scientific basis of racist and anthropocentric colonial policies reveals the necessity of historicizing a plantation logic. In a plantation logic, Ceylon's natural resources were appropriated through a prejudiced utilitarian vision of a "Cheap Nature" that supposedly belonged to no one. Simultaneously, racial and colonial biopower made the commodification of human and vegetal work possible. The manuals describe the steps through which human and more-than-human bodies were used in a system driven by maximum profit.

The Fungal Moment

I. A Fungal Way of Being

A narrative that gives space to fungi requires a dive—or at least a dip of the toes—in the life cycle of fungi. Mycology, a subdiscipline of microbiology, deals with their behaviour. Nicholas Money is a mycologist who published *Triumph of the Fungi: A Rotten History.*[69] His work is a synthesis of a science-based story of fungi reproduction and a humanities approach to the historical reactions to fungi diseases. The *H. vastatrix* in Ceylon is one of Money's case studies and includes a discussion of coffee rust alongside a primary source analysis of British entrepreneurs and botanists.[70]

67 Rajan, "Imperial Environmentalism or Environmental Imperialism?," 333.

68 Arnold, *Coffee: Its Cultivation and Profit*, 216–221; Rajan, "Imperial Environmentalism or Environmental Imperialism?," 333–334.

69 Money, *Triumph of the Fungi*.

70 Money, *Triumph of the Fungi*, 45–64.

According to Money, the *H. vastatrix*, in its confrontation with the coffee plant, centres upon the stomatic pores on the underside of the coffee leaf. While the plant uses these pores to breathe, the fungus finds its entrance into the plant. Once inside, the fungi form colonies that apply a feeding structure that is not meant to pierce the cell, but rather to connect to it and, subsequently, parasitize on the cell's nutrients. The fungus absorbs the plant's food until the tree has nothing left for itself to stay alive. It is a process of slow violence in which the host plant dies cell by cell. In the meantime, on the outside of the plant, the fungus germinates through spores. Moist conditions like those of Ceylon's monsoon period are ideal for the spores' multiplication. With its spores being remarkably resistant to long periods of drought, the *H. vastatrix* is able to reactivate itself at the start of the next monsoon season. As is usual in the fungal reproduction cycle, each infected leaf can bring forth countless spores. The slightest breeze is thus sufficient to fill the air with billions of them. Even in the dead leaves on the forest or plantation floor, the fungus finds hosts on which to parasitise.[71]

Employing mycology to give fungi a voice is both useful and problematic. The development of mycological science in the nineteenth century is connected to colonial interests. Mycology served the colonisers' attempts to ban fungi diseases from plantations and maintain the economy's profitability. Thus, the same knowledge employed to explain fungi in this paper was once used to exterminate them. However, as stressed by Money, it is often forgotten that fungi are "essential agents of decomposition and dispersers of nutrients throughout the ecosystem."[72] Importantly, the fungus itself is not a disease. Its labelling as a pathogen cannot be seen in isolation from profit-driven colonial agriculture. Capitalism is thus prevalent in a plantation logic.

II. The British Response

From the microscopic perspective, this paper zooms out and turns to the moment when the fungus was first noticed by coffee planters. Rather than the human-centred phrasing discovery of the fungus, the identification or noticing of the fungus implies that the organism had already been there but had simply remained unnoticed by the coloniser. In 1869, coffee rust was first identified in Madoolsema in the east of the coffee region through "orange blotches on the underside of the leaf."[73] George Thwaites, director of the Botanical Gardens near Kandy, collected samples of the mushroom. These were sent overseas to be studied in English research institutes. There, mycologists examined

71 Money, *Triumph of the Fungi*, 52–55.

72 Nicholas Money, *Mushroom* (Oxford University Press, 2011), 59–60.

73 Money, *Triumph of the Fungi*, 49.

the case and coined the fungus' name. The translation of *Hemileia vastatrix* reads "smooth destroyer," and, indeed, destroying plantations was what the *H. vastatrix* did. The immediate concern of British scientists with solving the fungal problem on their coffee plantations proves the close ties between scientific and capitalist interests.[74]

It must not have been easy to distinguish the effects of this fungus from the harm done by other pests. Most of these pests were insect populations like the leaf borer, the black bug and the white bug.[75] In the notes to the 1877 edition of his work, Edmund Hull complains that "yet another scourge has been added to the planter's already formidable list of troubles."[76] A year after being infected, the coffee plants lost their leaves and bore no more coffee berries. Soon after, they would die out en masse. Hull concludes that despite the containment efforts, already in 1875, "whole districts had been devastated."[77] Nevertheless, he kept his hope that the disease would be on the decline. A decade later, Arnold knew better. He concludes that the disease seemed to appear every other year.[78] The numbers published by *The Ceylon Observer Press,* illustrated in Figure 2.1, confirm his observation.[79] In the 1870s, the coffee production fluctuated and steadily declined in the 1880s.

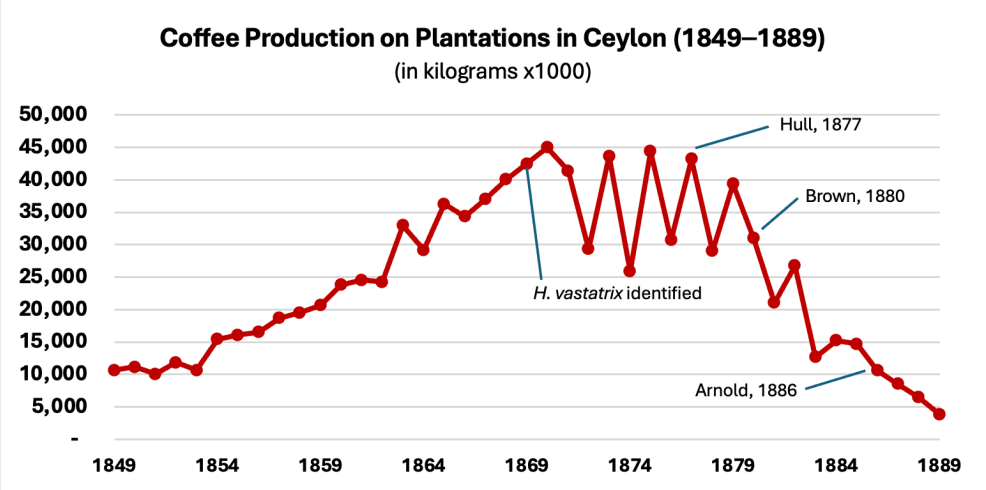


Figure 2.1 Coffee Production on Plantations in Ceylon (1849–1889)

74 Money, *Triumph of the Fungi*, 49.

75 Hull, *Coffee Planting in Southern India and Ceylon*, 264–273.

76 Hull, *Coffee Planting in Southern India and Ceylon*, 271.

77 Hull, *Coffee Planting in Southern India and Ceylon*, 271.

78 Arnold, *Coffee: Its Cultivation and Profit*, 129.

79 "Our Coffee Export Trade," in *The Ceylon Handbook and Directory* (Colombo: The Ceylon Observer Press, 1890/91), no page number.

While scientists researched the fungus in laboratories in Ceylon and in the United Kingdom, farmers on the ground had to develop strategies to overcome the epidemic. It is important to note that from an anthropocentric plantation logic, beating the fungus never had the goal of restoring a balance in Ceylon's ecosystem. The British strategies were capitalist and Eurocentric in their focus on keeping the coffee economy running.

The most accessible intervention was adding shade to the plantation. The first chapter shows how the British radically felled all the trees without exception. As environmental historian Stuart McCook describes, the dispense of trees providing shade, initially, brought more land into cultivation and increased profits.[80] The coffee plant, however, originally grew on the forest floor in Ethiopia where protection from sunlight by surrounding trees was abundant. Unfortunately for the farmers, the lack of biodiversity had already made their monocultures vulnerable. On top of that, the direct sunlight weakened the coffee plants and enhanced the fungus's effectiveness. The biopower of a plantation logic thus weakened the health of human and vegetal labourers alike. In response, Brown prescribes to "leave a tree every 40 feet" to provide a shade cover for the coffee plants.[81] As much as creating shadeless monocultures was an exertion of biopower to increase profits, monocultures that included shade were a result of measures to keep a capitalist system in place. One way or another, coffee was to be cultivated.

Adding shade did not prove sufficient. A second and more drastic measure was the abandonment of low-lying plantations, thereby moving coffee cultivation to drier and higher altitudes. The disease seemed less virulent in drier climates. The escape to disease-free areas was, however, not a long-lasting strategy. The *H. vastatrix* spores were carried quicker by the wind than farmers could act. Moreover, since its spores could survive periods of drought, the fungus proved to be adaptable to Ceylon's higher regions. It is this adaptability that shows how fungi could be subjected to colonial biopower but still have the agency to act. In fact, they shaped a successful survival strategy. Duncan's notion of a "non-human movement resisting against colonial power" reflects the fungus' capability to act.[82]

As mentioned in the previous chapter, Hull describes the ideal elevation range for coffee to have been 2,500 to 3,500 feet.[83] With the spreading coffee

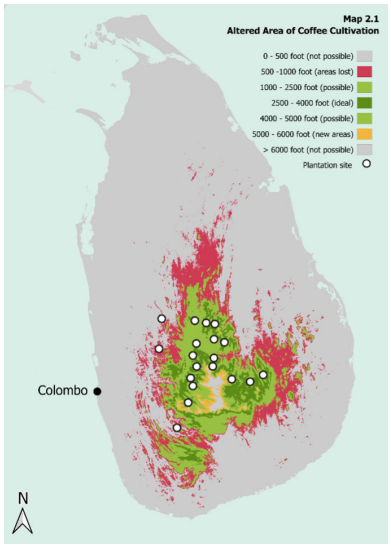
80 McCook, "Global Rust Belt," 181–182.

81 Brown, *The Coffee Planter's Manual*, 15.

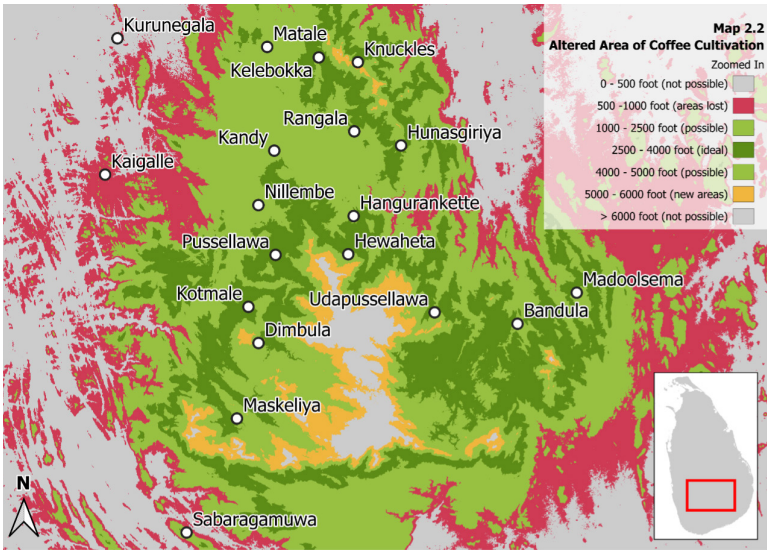
82 William Gervase Clarence-Smith and Steven Topik, *The Global Coffee Economy in Africa, Asia, and Latin America* (Cambridge University Press, 2003), 103; McCook, "Global Rust Belt," 181–182.

83 Hull, *Coffee Planting in Southern India and Ceylon*, 39–42.

rust, the boundaries of what was deemed ideal started shifting. The hot and humid climate of the lowlands favoured the multiplication of the fungi. As a consequence, the plantations up to an elevation of 1,000 feet were the first ones to be lost. On top of that, as Brown writes, plantations started to be established in higher and drier regions even up to 6,000 feet.[84] Map 2.1 brings together the visualisation of how the cultivation area was altered and specifically illustrates the size of the area that was lost to coffee rust. Zooming in, Map 2.2 shows how sites like Kurunegala and Kaigalle have now completely fallen out of cultivation.[85]



Map 2.1 Altered Area of Coffee Cultivation



Map 2.2 Altered Area of Coffee Cultivation – Zoomed In

84 Brown, *The Coffee Planter's Manual*, xiii.

85 See note 40 above.

Third, as a result of the limited success of adding shade and relocating plantations, farmers started to experiment with biochemical pesticides. The notion of experimentation is relevant because the long-term effects of sulphuric acids were understudied and unknown at the time. Most planters used variations of the European-invented Bordeaux mixture of copper, sulphur and lime. This chemical spray reduced the levels of *H. vastatrix* but their efficiency—at least in Ceylon—was ambiguous and ultimately not enough. According to Money, fungicides were the most successful in preventing infections but came for many planters too late. The fungus adapted and "eluded the sprays by submerging itself in the flesh of the leaf."[86] McCook adds that farmers received little support from colonial institutions and were thus left to research the biochemicals themselves.[87] "Science offered understanding, but no solutions," Money writes.[88]

The incorporation of agrochemical products in a plantation logic shows how a logic altered its practices but remained profit-driven in its philosophy. Despite the damage of toxins to the biophysical environment, the employment of chemicals was celebrated as the coming of modernisation to Ceylon's agriculture. This has to do with the appraisal that chemistry received as a rational science. Hull lauds how "the advance of science brought manufactured fertilizers in our reach." A few lines later he praises chemistry for having made "immense strides to carefully compound fertilizers … specially manufactured to an enormous extent for every species of cultivation."[89] Interestingly, the chemical mixtures were not described as pesticides meant to "fight" organisms but as fertilizers which "help" the crops to grow.[90] Hull's words reflect the belief that chemistry can find a solution for every type of cultivation.

Contemporary mycologists have shown that monocultures gave the *H. vastatrix* a fertile ground to grow, germinate, and spread. In a plantation logic, the obstacles that would have prevented a fungus population to continue growing had been removed. It had become a plague that threatened colonial agriculture and was to be banished. Foucault's phrasing of biopower as a "problem of population" is more than relevant here.[91] Besides the governing of human behaviour, the fungi population had similarly become a problem to the colonisers. Knowledge constructed by imperial sciences became a biopolitical

86 Money, *Triumph of the Fungi*, 55.
87 McCook, "Global Rust Belt," 183–185.
88 Money, *Triumph of the Fungi*, 55.
89 Hull, *Coffee Planting in Southern India and Ceylon*, 310.
90 Hull, *Coffee Planting in Southern India and Ceylon*, 310.
91 Foucault, *Society Must Be Defended*, 245.

tool for planters to deal with fungi populations. In Duncan's words, the bodies of the fungi had inevitably become "vehicles of history." [92] Rarely did Ceylon's colonisers care about people nor did they have an eye for the well-being of the more-than-human.

The attempts to exterminate the fungus reveal necropolitical power structures. Quinan writes that necropolitics "uncover the mechanisms whereby certain bodies are 'cultivated' or for the purpose of enhancing life while others are marked for death."[93] Although the coffee planters had rather seen the fungus dead, the micro-organism showed adaptability to external threats. It was naive to think of fungi as passive agents that would simply be eliminated when confronted with chemicals. The reality of monocultures turned the expectations of coffee farmers around. The illusion of linear progress from premodern forests to profitable plantations shattered. Monocultural planting had exhausted the coffee plants. Here, Brown writes, "the coffee tree of 1880 is not the same robust healthy plant that it was in the days prior to the leaf disease."[94] Monocultures clearly took their toll.

Eventually, the *H. vastatrix* got its hold on Ceylon's coffee plants and left Ceylon's coffee industry in ruins. Coffee production became a costly business with the necessity of biochemicals. On top of that, the low coffee yields could not compensate for those high costs. It meant the end of their career for most farmers. For those with enough capital, giving up coffee to produce tea or cinchona was more feasible. As Money states, it was on the wasted coffee plantations that the Lipton Tea empire took its flight. By cultivating a new cash crop, even out of wastelands, the capitalism of a plantation logic found a way to make a profit.[95]

This chapter has given an insight in how the *H. vastatrix* reproduces through the aerial spread of its spores. It was not surprising that it could thrive on Ceylon's hot and humid monocultures. Strategies to add shade, cultivate in higher and drier regions, and apply chemicals were insufficient to tackle the advancing fungus. These tactics reflect the exertion of colonial biopower to get a hold of the fungus's body. Despite the intensive attempts to kill it, the monocultures kept giving the fungus fertile ground to come alive. Eventually, the coffee business in Ceylon was exchanged for tea.

92 Duncan, *In the Shadows of the Tropics*, 20.

93 Quinan, "Necropolitics," 272.

94 Brown, *The Coffee Planter's Manual*, 181–182.

95 Clarence-Smith and Topik, *The Global Coffee Economy*, 112; Money, *Triumph of the Fungi*, 58.

Conclusion

All things considered, the monocultural plantations are clearly to blame for their own downfall. Behind a plantation logic in Ceylon lies a racist colonial philosophy that put the European human at the centre stage. From the belief that Ceylon's dark forests had to be "enlightened" with European rational science, the British took over the control of its landscape. The manuals from the nineteenth century elaborately describe the process of choosing the right location, radically felling the forest, organising a human and vegetal labour force, and mathematically administering the whole. The governing of human and more-than-human bodies was an inherent part of the British agriculture policy. The bodies of native labourers were violently commodified to serve the colonial interest of a thriving coffee economy. For the same purpose, the science of botany justified coffee plants to be rationally aligned. The long-term health of these plants was subordinate in a plantation logic.

The subsequent fungi epidemic on the plantations gave the coffee farmers a reality check of what it meant to implement monocultures. The poor biodiversity of lands in combination with shadeless fields gave the *H. vastatrix* a fertile ground to spread. Although the reproduction of the fungus was a natural process in itself, the human-made historical conditions that facilitated it should not be neglected. As mycological science developed ways to keep the plantation economy running, this history repeatedly shows how colonialism, science, and capitalism were intertwined. *H. vastatrix* was fought with strategies of shading, moving plantations to higher elevations, and applying biochemicals. However, even under these exertions of biopower, the fungus proved able to adapt. Spreading its countless spores through the wind, the fungus spread quicker than any farmer could have acted. By the late 1880s, the coffee economy of Ceylon was close to an end.

With its focus on the biopolitical governance of living bodies, this paper has revealed the far-reaching consequences of monocultural planting in Ceylon. Regarding the human dimension, the racial ground on which the health of native labourers was damaged reflects an invasive form of colonial biopower. In respect to the more-than-human, this narrative contributes to the historiography in two ways. First, it proves that human actions have a profound effect on both human and more-than-human actors whether plants or fungi. Second and more importantly, it demonstrates how the more-than-human equally influences human behaviour. After all, the evolving survival strategies of the *H. vastatrix* continuously challenged the planters to adapt. From its human-centredness, a plantation logic was clearly not aware of this complex interplay. The analysis of racial and colonial biopower in this essay demonstrates that agency is more complex than it seems at first glance.

Undoubtedly, further research can be done on the link between fungi diseases and coffee production or monocultures in general. Since *H. vastatrix* spread to other coffee regions after devastating Ceylon's plantations, the expression and impact of biopower on other monoculture sites offer an interesting angle. As interesting would be a further exploration of fungal agency. Earlier-cited scientist Nicholas Money is part of a group of mycologists who suggest that fungi might have a consciousness including decision-making capabilities. Its implications for how historians approach human-fungal relationships and for the language historians use to describe this fungal mind deserve their own research.[96]

96 Nicholas Money, "Hyphal and mycelial consciousness: the concept of the fungal mind," *Fungal Biology* 125, no. 4 (2021): 257–259.

"One Year's Seeding, Five Years' Weeding": The Vegetal Body of Lalang (*Imperata cylindrica*) and Weed Management in Rubber Plantations

ABSTRACT

In the first decade of the twentieth century, British Malaya was a centre of commercial and scientific attention as a potential site for large-scale rubber cultivation. What obstructed the colonial ambitions of commercial rubber plantation was the presence of lalang, *Imperata cylindrica*, a plant native to Southeast Asia, deemed an extremely invasive weed to rubber by the European planters and the subject of many weed management campaigns. The establishment of scientific institutions to study the tropical biota coincided with the violent extraction of human and more-than-human bodies. By examining the portrayals and treatments of lalang in colonial archives and historical newspapers, this paper engages with the plant turn that treats plants as agents capable of reshaping the living material world. On the one hand, this paper attempts to uncover how the colonial projects of rubber cultivation constructed ideas of lalang as an invasive weed, symbolic of the overall inferiority of the region, justifying the exploitation of bodies and land for the purpose of commercial interests. Yet these attempts to enforce colonial domination were also challenged by the unpredictable growth of lalang and vegetal bodies as they defied constructed ideas of pest and profitability and thus played a significant role in the empire-making processes in British Malaya.

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Introduction

The increased exchange of scientific information between Western scholars and scientists in the nineteenth century not only led to the emergence of scientific institutions in colonial metropoles but also enabled the transfer of capital and manpower internationally. Such was the case for the colonial networks connecting the commercial harvest of rubber in Brazil and the colonial offices in Southeast Asia. The success of Brazil's commercial rubber industry spurred scientific interest in the development of rubber cultivation and other monocrop-based industries in the tropical colonies of Southeast Asia.[1] With the establishment of the Singapore Botanic Garden in 1859, British Malaya in the first decade of the twentieth century emerged as one of the potential arenas to experiment with large-scale rubber cultivation, which simultaneously saw the arrival of European planters and ecologists to map and evaluate the aptness of unfamiliar tropical biota for rubber plantation.[2] One species that frustrated many rubber planters was *Imperata cylindrica*, referred to as "lalang" in Malay. Known for its damage to rubber plant roots and resistance to fire and common pesticides, the failures of planters and scientists to achieve lalang eradication at a time of increased industrial demand for rubber reflect the continuities and ruptures in the colonial projects of productivising nature.[3] This decade of experimentation at the beginning of the 1900s, before the institutionalisation of rubber research and the science of weed control in the Rubber Research Institute of Malaya in 1926, provides insights into the successes and failures of the colonial administration in economic botany, weed management, and land transformation.[4] This investigation explores how weed management enabled colonial control over particular plants and people as exploitable resources, as well as the power of natural disturbances and more-than-human actors in gaining a foothold in deterring commercial agriculture. The research will begin firstly by deconstructing the colonial portrayal and treatment of the local plant lalang as a dangerous weed. More importantly, I aim to identify how this creation of persistent, ineliminable weed features confirms a colonial-racial hierarchy that portrays the local Chinese and Malay population as lazy and lacking discipline, thus only fit to be exploited as a labour force. Moving onto planters' solutions for lalang eradication, the article will draw attention to the characterisation

1 Lucile H. Brockway, "Science and Colonial Expansion: The Role of the British Royal Botanic Gardens," *American Ethnologist* 6, no. 3 (1979): 450.

2 Jeyamalar Kathirithamby-Wells, "Peninsular Malaysia in the Context of Natural History and Colonial Science," *New Zealand Journal of Asian Studies* 11, no. 1 (2009): 337, EBSCOhost.

3 Edward Greatrex, "'Back to the Jungle': Investigating Rats, Grass, Scrub Typhus, and Plantations in Malaya, 1924–1974," *Medical Anthropology* 42, no. 4 (2023): 342, https://doi.org/10.1080/01459740.2023.2185887.

4 Kathirithamby-Wells, "Peninsular Malaysia," 372.

of weeds both as an obstacle to modernisation and a protective agent in the face of unexpected ecological challenges such as fungal attacks. Finally, focusing on the ways planters and biologists studied and experimented on the behaviour of lalang, this paper aims to uncover how the unpredictable growth of lalang and the natural biota of British Malaya informed agendas of plantation estates and research institutes as well as reshaped colonial pest control management, highlighting the diverse roles of more-than-human actors in empire-making processes.

Primary Sources

This article will primarily draw on the scientific publications of colonial planters and botanists as primary sources. Most experiments and discussions on lalang come from the journal *Agricultural Bulletin of the Straits and Federated Malay States* (hereafter the *Agricultural Bulletin)*, which was initially called the *Agricultural Bulletin of the Malay Peninsula* and founded by H. N. Ridley in 1891. This periodical marked the emergence of a European scientific community devoted to economic botany and the growth of commercial cultivation of rubber as plantation crop in tropical colonies.[5] Appointed by Governor Sir Cecil Clementi Smith as the Director of the Forests and Gardens of the Straits Settlements, Ridley's former experience as gardener and botanist put him "on a par" with the Directors of the Botanic Gardens in Ceylon and Jamaica.[6] The monthly issues of the *Agricultural Bulletin* published research from the scientific community constituted by European botanists and ecologists.[7] Collectively, these experts set the stage for the development of economic botany, a field that received extensive government support for its application of science to agriculture and the methodological improvement to plant cultivation and breeding.[8] By tracing how trends in weed management for rubber cultivation changed from around 1900 to 1910, this investigation contributes to understanding the evolution of pest management from individual, amateur observations from travellers' expeditions to systems of standardised procedures on pest control and plantation management.[9]

Alongside the aforementioned scientific publications, I consider colonial newspapers that published English-language updates on visits of imperial

5 K. M. Wong, "A Hundred Years of the Gardens' Bulletin, Singapore," *Gardens' Bulletin Singapore* 64, no. 1 (2012): 2.

6 Wong, "A Hundred Years of the Gardens' Bulletin," 357.

7 Mohd Hazim Shah, "Historicising Rationality: The Transmission of Rationality and Science to the Malay States Under British Rule," *Asian Journal of Social Science* 35, no. 2 (2007): 235, https://doi.org/10.1163/156853107X203441.

8 Shah, "Historicising Rationality," 235.

9 Kathirithamby-Wells, "Peninsular Malaysia," 357.

officials and investors to British Malaya such as *The Straits Times*, *Straits Budget*, and *Straits Echo*. By comparing the changing trends in the fields of botany and rubber cultivation through both academic sources from scientists and remarks by European investors, I was able to examine how the "scientific" studies of plants and environment interacted and intertwined with industrial interests that treated plant, land, and humans as strategic resources. Dating back to 1845, *The Straits Times*, an English-language daily newspaper published for overseas distribution, and the *Straits Budget*, the weekly issue of *The Straits Times*, circulated updates on commercial and industrial development in the Malay states and Straits Settlement.[10] *Straits Echo*, on the other hand, was a daily chronicle published by the Criterion Press from 1903 to 1931 in Penang.[11]

Additional publications by planters and colonial officers are also included to situate the concerns about lalang in the overall colonial passion towards maximising productivity and claiming authority over nature. *The Rubber Tree Book,* written by the Scottish commissioner W. F. de Bois Maclaren, offers an overview of rubber management with the purpose of "offering better results... and to achieve these on more economical lines."[12] Published for the purpose of improving the efficiency of rubber companies, *The Cultivation of Hevea: A Manual for the Planter* documents the journey of the Dutch merchant P. J. S. Cramer from Singapore to Penang and the various improvements in rubber cultivation he wished to communicate to the planters.[13] In contrast, the account *My Tour in Eastern Rubber Lands* written by Sir Herbert Wright came from one of the most prominent voices of rubber research.[14] As the director of the Agricultural Experiment Station in Ceylon and later editor of the *India Rubber Journal*, Wright's observations on rubber and lalang growth allow us to study the dominant trends in weed management and economic botany at the time of their emergence.[15]

Overall, engaging with scientific journals, newspapers, and accounts from planters across the European empires allows the researcher to consider the management system of rubber production in British Malaya as a hybridity of knowledge exchanges from interimperial collaboration and European interpretations of the local biota. This text also acknowledges that a focus

10 Stephanie Ho, "The Straits Times," National Library and Archives Board of Singapore, https://www.nlb.gov.sg/main/article-detail?cmsuuid=382e8b41-dc5a-4091-af00-56ae985f0c5c.

11 Straits Echo, NewspaperSG, https://eresources.nlb.gov.sg/newspapers/browse/strait-secho.

12 W. F. de Bois Maclaren, *The Rubber Tree Book* (Maclaren & Sons, 1913), 20.

13 Pieter J. S. Cramer, *The Cultivation of Hevea: A Manual for the Planter*, trans. Stuart R. Cope and A. Content (Amsterdam, 1911), 19.

14 Herbert Wright, *My Tour in Eastern Rubber Lands* (Maclaren & Sons, 1908).

15 "Sir Herbert Wright," *Nature* 146, no. 3708 (1940): 677, https://doi.org/10.1038/146677a0.

on sources produced by colonial administrations and European scholars risks reproducing a Eurocentric perspective that ignores crop cultivation methods developed and practiced locally in the Malay Peninsula. However, this approach also reflects the uneven representation in archival record, where documentation of indigenous rubber cultivation practices remains fragmentary and limited by the "complex machinations of the British administrators and the Malay aristocracy."[16]

Literature Review

This research is primarily motivated by the "plant turn" that sees scholars like Sophie Chao reconsidering the social role of plants, specifically, as "communicative, sentient, and worldmaking actors" capable of influencing the human and more-than-human.[17] Among these scholars, I was inspired by Jeyamalar Kathirithamby-Wells's evaluation of the role of natural history in expanding the boundaries of colonial enterprise through the cataloguing and "territorialization" of nature.[18] Consequently, this project will centre on how scientific mapping of unknown territories and biota through observation and plantation experiments served to advance empire-making. Within this concern with the role of science in colonial projects, this work specifically examines the intersection of scientific knowledge production and rubber cultivation. Existing literature on rubber plantations in British Malaya centres on plantation logics of landscape transformation and racial and colonial control that governed plant and people across time and space in relation to changing market demands.[19] In consideration of the focus on rubber cultivation, this paper also responds to the concept of vegetal geography in the Plantationocene discourse as articulated by Maan Barua, who uses the uncontrolled proliferation of the plant Mikania in Assam to emphasise the significance of plants as agents that have bearings on the social organisation of colonial plantations as well as a part of its lasting damage "brought upon to the vulnerable Adivasi community."[20] Adding to the discussion on the role of plants, Jennifer Atchison and Lesley Head foreground how "bodies" are an

16 James C. Jackson, "Chinese Agricultural Pioneering in Singapore and Johore 1800-1917," *Journal of the Malaysian Branch of the Royal Asiatic Society* 38, no. 1 (1965): 77, https://www.jstor.org/stable/41491840.

17 Sophie Chao, *In the Shadow of the Palms: More-Than-Human Becomings in West Papua*, (Duke University Press, 2022): 8, https://doi.org/10.1215/9781478022855.

18 Kathirithamby-Wells, "Peninsular Malaysia," 346.

19 Mardi Reardon-Smith, "In the Weeds: Thinking Through Anthropological and Other Social Science Approaches to Invasive Plant Species and Their Control," *Environment and Planning E: Nature and Space* 8, no. 2 (2025): 3, https://doi.org/10.1177/25148486241311796; Maan Barua, *Plantation Worlds* (Duke University Press, 2024): 3.

20 Maan Barua, "Plantationocene: A Vegetal Geography," *Annals of the American Association of Geographers* 113, no. 1 (2023): 24, https://doi.org/10.1080/24694452.2022.2094326.

unacknowledged scale and space in plant management. Similarly, Atchison and Head propose the idea "vegetal bodies" as "a corporeal refiguring" that foregrounds the bodily transformation and identities of plants in different material forms, which in turn "provides new insights into the kinds of things that plant life does, and how plants come together with other non-plant (including human and animal) bodies."[21] Considering the perspective of vegetal agency, this article also engages with the field of weed management, which scholars such as Peter Triantafillou regard as a modern field of political intervention and contestation.[22] Evaluating the bodies of knowledge and techniques of governance involved in pest control gives insights into the heterogeneous meanings given to plant ecologies for profit maximisation and resource conservation, which in turn highlight plants as agents capable of rectifying the systems built to extract value from them.

While widely recognised as one of the most problematic weeds for colonial plantation management, very little attention has been paid to the social role of lalang. L. M. Potter provided a general timeline of the economic and cultural significance of lalang in the local economy in contrast to its classification as an unwanted weed for colonial planters.[23] Considering the issue during the height of colonial expansion in Southeast Asia, this article will contribute to the study of lalang by evaluating its changing roles in the capitalist form of agricultural production as a challenge to the "epistemic imperialism" of the monocrop plantation model centred around one plant.[24] While some scholars have focused on the dynamics between settler colonial governments and the complexity of interspecies relations, my decision to focus on British Malaya is informed by scholars who highlight the distinctiveness of the tropical environment in Plantationocene discourse. Maureen Sioh identifies how the ecologically diverse Malayan forests alongside their multiracial demography are reconfigured and commodified as a workforce for the plantation complex and the colonial state-making agenda.[25] This is echoed by Barua, who compares the difference between the system

21 Jennifer Atchison and Lesley Head, "Eradicating Bodies in Invasive Plant Management," *Environment and Planning D: Society and Space* 31, no. 6 (2013): 955, https://doi.org/10.1068/d17712.

22 Peter Triantafillou, "Governing Agricultural Progress: A Genealogy of the Politics of Pest Control in Malaysia," *Comparative Studies in Society and History* 43, no. 1 (2001): 194, https://doi.org/10.1017/S0010417501003644.

23 L. M. Potter, "The Dynamics of *Imperata*: Historical Overview and Current Farmer Perspectives, with Special Reference to South Kalimantan, Indonesia," *Agroforestry Systems* 36 (1996), https://doi.org/10.1007/BF00142866.

24 Chao, "The Beetle or the Bug?," 478.

25 Maureen Sioh, "Authorizing the Malaysian Rainforest: Configuring Space, Contesting Claims and Conquering Imaginaries," *Ecumene* 5, no. 2 (1998): 145, https://doi.org/10.1177/147447409800500202.

of indentured labour common in Asia and the slave-based production of the Atlantic plantations.[26] By tracing the different portrayals of lalang and a lalang-covered place in the colonial archives of British Malaya, this research sets out to understand how systems of rubber and weed management are informed and shaped by the unpredictable movement of plants. Subsequently, this case study uncovers the ways scientific studies of the local biota and the commercial interests to maximise profits collectively justified the exploitation of land and bodies by reconfiguring tropical landscape as places of "savagery, pathogenic threat and the prospect of white degeneration."[27]

"Lalang and Chinaman": Persistent Weeds and Racialisation

According to the Singapore National Parks Board, *Imperata cylindrica*—commonly referred to as lalang in Malay or cogongrass in English—is a "tall perennial grass" that could grow from 0.2 to 2.0 m in height, with a large underground stem very difficult to uproot. Native to Southeast Asia, the plant has been used by the local Malay and Chinese populations to treat cough and diarrhoea. Seen as a fixed feature of Southeast Asian landscapes, *Imperata cylindrica* is often referred to directly as "lalang" in colonial periodicals as early as the mid-nineteenth century, emphasising its origin as an invasive plant in rubber cultivation and its alien status outside of the European binomial system of plant classification.[28] Lalang is often referred to as the "bleeding weed" by European scholars in colonial newspapers, its razor-sharp leave edges easily making cuts on human skin, its roots making rubber plant decay, and requiring immediate elimination, which unveils the colonial logic in constructing and conditioning certain plants as an invasive, undesirable weed.[29] Acknowledgement of the dangers of lalang appeared in the *Agricultural Bulletin* as early as the first issue in October 1901, as part of the general introduction to the timbers of the Malay Peninsula.[30] The author locates the growth of lalang in forests that were felled and burned but abandoned, foregrounding the unexpected consequences of human transformation of the forest. Usually reforested by secondary growth trees with no external intervention, the constant burning of forest for cultivation and plantation instead created patches of ground dominated by lalang.[31] Sometimes, lalang would even dominate the land that had not undergone burning. This attempt to explain the rise of lalang introduces a collection

26 Barua, "Plantationocene: A Vegetal Geography," 36.

27 Greatrex, "'Back to the Jungle,'" 340.

28 *The Journal of the Indian Archipelago and Eastern China* 3 (1847): 369.

29 *Agricultural Bulletin* 3, (1904): 267.

30 *Agricultural Bulletin* 1, (1901): 2.

31 *Agricultural Bulletin* 1, (1901): 3.

of undesirable conditions, such as dry weather and remains of seed on the surface of the soil, which supposedly predict the spread of pests and justify colonial encroachment of the physical environment.[32] This description of the persistent reproduction and movement of lalang is confirmed in a report on *Termes gestroi* by Herbert C. Robinson, a British zoologist employed as curator in the Selangor State Museum in Kuala Lumpur in 1904, who summarises all wood pests threatening the health of para rubber.[33] Equally dangerous as the *Termes carbonarious*, a species of termites that eats up the roots of rubber, Robinson emphasises the strength of lalang grass to "become very abundant pests for any great strength of time in one spot."[34] Moreover, Robinson describes the physical characteristics of lalang that allow it to adapt and protect itself from eradication from natural disturbances such as fire.

> Lalang chiefly holds the ground by virtue of its having its persistent rhizomes at a considerable depth below the surface of the soil. The leaves and flower stalks are very inflammable when dry, and in many places being often fired any other competitive weeds growing through it, together with their seeds lying on the surface of the ground, are destroyed, while the lalang itself is unhurt, and immediately shoot up again.[35]

This description of lalang confirms the human construction of "weeds" as a metaphor of disorder used to establish a dichotomy between a local yet "highly destructive" plantation weed needing intervention and economically valuable species such as rubber as victims of the threatening weeds.[36] The image of the vegetal body of lalang with "rhizomes" capable of extending into the roots below the soil points to a plant agency that escapes from human surveillance. This study of the physical characteristics of lalang reveals the impact of continued lalang growth on landscape transformation that persists and multiplies under colonial rule. Description of the way lalang clings onto roots also speaks to the entanglement of rubber and lalang, where the weed ends up "parasitizing" the same cash crop that cultivated the ecological environment conducive to their thriving.[37] Rather than simply being an "invasive weed" that destroys rubber trees, the movement of lalang in plantation soil highlights the complex symbiotic relations embodied by the plant, which can be "threatened by, threatening to, or thriving" with the

32 Triantafillou, "Governing Agricultural Progress," 201.

33 Herbert C. Robinson, *Agricultural Bulletin* 3, (1904): 478.

34 Robinson, *Agricultural Bulletin*, 478.

35 Robinson, *Agricultural Bulletin*, 490.

36 Lucia Argüelles and Hug March, "Weeds in Action: Vegetal Political Ecology of Unwanted Plants," *Progress in Human Geography* 46, no. 1 (2022): 46, https://doi.org/10.1177/03091325211054966.

37 Chao, "The Beetle or the Bug?," 480.

plantation.[38]

This reference by planters to a persistent lalang on abandoned, emptied forest land directly attributes the emergence of lalang-covered land to the alleged carelessness and laziness of local people previously responsible for it. This attribution in turn serves to justify the need for colonial governance of both the landscape and people to upkeep a clean and orderly garden in the form of the rubber plantation. Starting from 1903, there are multiple entries in the local newspaper by British planters and plantation shareholders who are discontent with the local Chinese and Malay methods of weed management. Edgar G. Money, an engineer and shareholder of a British property and industrial agency Messers Boustead Bros, directly points to the Chinese as the cause of such overflowing lalang wasteland in an interview with the *Straits Budget*.[39] Like the Malay, the Chinese obtained these large blocks of land to grow tapioca. As soon as they exhausted the soil with tapioca plantations, they "quietly moved on to another plot of their block, leaving the first to stand as they had left it," subsequently resulting in "a tremendous lot of land in certain districts had been abandoned and covered with lalang."[40] This discourse of abandonment and inaction with the Chinese and Malay planters points to the instrumentalization of lalang to forge a hierarchy of land use and human-nature relationships with the Chinese and Malay people as subordinates.[41] Moreover, the background of Edgar G. Money as shareholder of a property agency with branches based in Mombasa and Zanzibar points to the interregional information networks connected by empires and the intersection of botanical studies and industrial interests.[42] Similarly, an article titled "Malaya: The Boom in Rubber, No Help from Government," published in the *Straits Budget* in 1906, highlights this dynamic of action and discipline.[43] Resonating with the previous complaints on unequal land selection policies, the author expresses the potential for rubber industries in the Federated Malay States (FMS) but complains about the "improvident Malays" who "had never been taught the virtue of thrift" and were induced to plant whatever was seen as profitable, such as coffee.

> When the slump came in coffee the Malay lost heart, allowed the insidious lalang grass to creep into his plantations, which he was too lazy to weed himself; so that today between Prai and Taiping and port Swettenham and

38 Chao, "The Beetle or the Bug?," 478.

39 *The Straits Budget*, April 5, 1906, 6, https://eresources.nlb.gov.sg/newspapers.

40 *The Straits Budget*, April 5, 1906, 6.

41 Sioh, "Authorizing the Malaysian Rainforest," 152.

42 *Europeans in East Asia*, accessed March 28, 2025, https://www.europeansineastafrica.co.uk/_site/custom/database/default.asp?a=viewIndividual&pid=2&person=269.

43 *The Straits Budget*, January 11, 1906, 4.

> Kuala Lumpur the traveller on the Malay states Railway is treated to a vision of acres of ruined coffee estates which might today have been just coming into bearing with a rich crop of rubber had only their owners been less thriftless and the government more paternal.[44]

The supposed laziness and shortsightedness of the Malay people following the harvest is considered as the causality of the lalang wasteland around the FMS, and suggests how weeds became a "bureaucratic category" that divided the native villagers from British cultivators by their level of progress with weeding, justifying the need for intervention and restoration.[45] Moreover, the sensitivity and knowledge in regard to commercial potential and management of rubber cultivation suggests the weed as a mediator of commodification and scientific knowledge production. Indeed, the section concludes in a hopeful tone.

> Fortunately, for the future agricultural prosperity of Malaya, the European planters and their own or two Chinese fellow-craftsmen were made of sterner stuff than the Malays. They grumbled and they growled as only Britons can, and they looked matters squarely in the face, cut down expenses whenever possible, put in fresh crops of products to take the place of the useless coffee, and sat down to wait for the better times which are now dawning.[46]

Putting the blame for the sight of "ruined coffee estates" on Chinese and Malay inaction to lalang growth highlights the supposed diligent nature of British planters. This binary categorisation is then used to confirm the undesirability of both weeds and certain groups of people and highlights the need to eliminate both such species of backwardness and uncontrollability. In an article published in *Straits Echo* on 21 December 1907, Mr John. B. Carruthers, Director of Agriculture in the FMS, is recorded to have said that "while the Malay Peninsula was excellent, but the things on top of it we could do without—lalang and Chinamen."[47] In considering the categorization of "native" and "introduced" plants, Mardi Reardon-Smith references the settler-colonial logic behind the temporal threshold of using such categories in the Australian context, where establishing a temporal boundary based on European colonisation of the land means all species present before European colonial are considered "native" and those arriving afterwards as "introduced."[48] This conception of a "natural, native landscape" erases the

44 *The Straits Budget*, January 11, 1906, 4.

45 Argüelles and March, "Weeds in Action," 47.

46 *The Straits Budget*, January 11, 1906, 4.

47 *Straits Echo*, December 21, 1907, 4.

48 Reardon-Smith, "In the Weeds," 664.

historical settlement and plant cultivation by Aboriginal people and serves to advance the project of dispossession and expropriation of their resources.[49] This theory can be applied in the Malay context, in associating lalang with Chinese inhabitants as two species embedded in the Malay landscapes, it serves to justify the colonial agenda to eliminate all existing bodies on the Malay Peninsula, also diminishing the agency of Malay and Chinese inhabitants in understanding and managing the local biota before European arrival. Relating to the imaginary of "*terra nullius*" behind claims of pest control, lalang-covered lands are seen as unoccupied, abandoned territory available for development, which legitimises the dispossession of indigenous land and resources for crop economies.[50]

Lalang and Methods of Eradication: Consistency and Vegetal Work

Implicit in the description of the lazy Malay and Chinese who spoil the land is a concern with the labour required to eradicate lalang. Numerous experiments on lalang extirpation appeared in the *Agricultural Bulletin*, with an emphasis on the value of patience and repeated action for lalang eradication. In *The Rubber Tree Book*, written and published by William F. de Bois Maclaren in 1913, Maclaren highlights how "the smallest portion of a root left in the soil when weeding starts a fresh and vigorous growth" and usually extend the roots at six to twelve inches below the surface strangling all other vegetation.[51] Using the saying "one year's seeding, five years' weeding," he stresses the importance of a "system and persistent effort" of hoeing as the only way to eliminate lalang.[52] This process of patiently loosening the soil and digging out the lalang roots with blades also requires a spatial reconfiguration, where lalang-covered land is often divided into blocks of small patches that will each be "thoroughly well chankolled over during the first three weeks" and repeated multiple times.[53] This process of completely clearing the land before introducing the target species is called clean weeding, a practice common on colonial estates, which implies a colonial ideology of cleanliness and pristine nature made available for agricultural production.[54] The same method of repeated, careful repetition of weeding is emphasised in the book, *The Cultivation of Hevea: A Manual for the Planter*, published in 1911 and written by Dutch merchant and entomologist Pieter Cramer.[55] On top of producing

49 Reardon-Smith, "In the Weeds," 664.

50 Reardon-Smith, "In the Weeds," 664.

51 Maclaren, *The Rubber Tree Book*, 222.

52 Maclaren, *The Rubber Tree Book*, 222.

53 Maclaren, *The Rubber Tree Book*, 222.

54 Kathirithamby-Wells, "Peninsular Malaysia," 372.

55 Cramer, *The Cultivation of Hevea*.

a clean garden, clean weeding was seen as the cheapest method of weed management, if it was carried out "systematically from the beginning of the work and no pains should be spared to this end."[56] This emphasis on the cost-effectiveness of constant ploughing draws attention to the Plantationocene, which entails the collective exploitation of plant and human labour, embedded in the method of clean weeding.[57] This human and more-than-human labour is mentioned in the article "Suggestions on Planting: Machine Cultivation to Save Hand Labour" written by C. C. Malet.[58] In the first round of ploughing, one disc plough is attached to a good team of oxen, which will plough up 50 acres of lalang land in about three months. The spaces around the trees that cannot be touched by the ploughs will have to be cut down by hand and completely cleared away.[59] After the second round of the disc harrows was employed, a small amount of hand labour will once again be employed around the trees where the machine could not reach.[60] The materiality of the "weeded land" and characteristics of the lalang's body, which resurfaces after rain, suggests the agency of lalang and the soil as active participants in structuring and patterning plantation time according to their metabolic processes.[61]

Indeed, the labour condition of plantation workers is rarely mentioned in the calculation of weeding costs, which highlights the racialised exploitation of labour power in the violent colonial pursuit to transform nature into resources. Plantationocene discourse is concerned with ecological or environmental disruption caused by human control over nature.[62] In an interview with Mr. Herbert Wright, the editor of the *India Rubber Journal*, in *The Straits Times*, Wright was asked about any labour difficulty in the Federated Malay States, to which he replied with "absolutely no scarcity of labour" and for a few estates a surplus as "the native population is large and industrious," and the tobacco fields cultivated mainly "by the Chinese, Japanese, and a few Malays being used for the rubber estates."[63] This lack of difficulty with labour management is affirmed in another interview with C. Bowle Evans, who was interviewed by a representative of the *Ceylon Observer* after returning to Ceylon from the Straits.[64] When asked about the labour problem, Evans considers the three-year indenture system implemented in Sumatra as "one of the best labour forces" as the Javanese employed "are freely re-indenturing themselves

56 Cramer, *The Cultivation of Hevea*, 45.
57 Barua, *Plantation World*, 36.
58 *The Straits Budget*, July 14, 1910, 8.
59 *The Straits Budget*, July 14, 1910, 8.
60 *The Straits Budget*, July 14, 1910, 8.
61 Barua, "Plantationocee: A Vegetal Geography," 19.
62 Barua, "Plantationocee: A Vegetal Geography," 26.
63 *The Straits Times*, June 24, 1908, 2.
64 *Straits Echo*, June 30, 1909, 6.

for a further three years," and "the manager always knows the available labour force for tapping, whereas with the ordinary labour forces or a village community, you never know how many tappers may be available."[65] Described by Maan Barua as the "new system of slavery," the favouring of indentured labour over the local workforce displays the land dispossession experienced by local villagers as they are pushed away from forests and the source of their livelihood.[66] Meanwhile, the migrant Javanese workers, like the Adivasi community brought from central and eastern India are "immobilised in coolie-line resembling barracks"[67] in the plantation landscape as a productive workforce in service of an "uneven racial-colonial economy."[68] The heavy, continuous labour required on the plantation field influenced colonial labour organisation, where Javanese migrant workers were preferred by colonial officials as "cheap, plentiful and easily disciplined" labour.[69] Evan's remark on local and Javanese workers highlights the ways through which lalang eradication became a technique of the colonial environmental governance to discipline and regulate labour, as well as to rationalise the dispossession of indigenous land and resources.[70]

Simultaneously with the forced human labour, lalang eradication involved vegetal work in the form of vegetation cover, where other weeds are employed to destroy lalang. This vegetal work once again foregrounds the encounter between vegetal agency and the colonial reordering of ecosystems, favouring one species over another on the basis of economic utility.[71] The use of vegetation cover as pest control partially arose from a limitation of clean weeding to accommodate the multiple environments of the FMS. Specifically, it was discovered that ploughing on landscapes with steep slopes subject to severe washes of soil would remove the surface soil rich in vegetable humus.[72] It was thus a concern for botanists to find light and "harmless grasses and weeds" that could serve as protective weed covering to keep the surface of the soil moist while preventing the growth of harmful weeds.[73] *Mimosa pudica* was one of the species favoured as an effective and cost-efficient weed cover. A native of Brazil but acclimatised and growing luxuriously in the FMS, *Mimosa pudica* is a leguminous plant carrying nodules that can branch from a single stem, a covering that can spread up to seven feet in every direction

65 *Straits Echo*, June 30, 1909, 6.
66 Barua, *Plantation Worlds*, 36.
67 Barua, *Plantation Worlds*, 20.
68 Barua, *Plantation Worlds*, 27.
69 Barua, *Plantation Worlds*, 20.
70 Barua, "Plantationocene: A Vegetal Geography," 18.
71 Triantafillou, "Governing Agricultural Progress," 198.
72 Maclaren, *The Rubber Tree Book*, 225.
73 Maclaren, *The Rubber Tree Book*, 225.

over the surface of the soil to about six inches in height.[74] These nodules have valuable fertilizing properties, such as nitrogen, which are added into the soil after ploughing. They were specifically planted in belts down the centre of the avenues between the rows of trees to allow "coolies" to walk up and down the rows of trees.[75] This also means that these South Indian workers hired by the colonial government on indentured contracts often had to endure the cuts made by thorns of the *Mimosa pudica* plant.[76] However, their thorns that can bend down lalang also meant the "coolies" responsible for ploughing had to be provided with shoes and "wrap strips of old garments round their legs to preserve them from being severely scratched as they walk over the mimosa while beating it down."[77] This measure exhibits the labourer's body as an assemblage of plant and human bodies as the *Mimosa pudica* thorns cling to the garments worn by the human labourer.[78] Similarly, the constant need to correct the height of the plant every twelve to fifteen months to maximise its efficiency as covering legitimises human interference on vegetal growth for maximal efficiency during its own process of regeneration.[79] This mutual influence between human and plant bodies signifies the interspecies "entanglement" in which plant growth subverts plantation time and is also subjected to the demands of monocrop plantations.[80] In other words, while the uncontrollable growth of the weeds inflicts changes on human bodies and coerces them into forced labour, the factory mode of commercial weed management also regularises and "re-orient[s] the time of vegetal life" and their bodies to fit the time and labour required for rubber production.[81] In this way, vegetal bodies in rubber plantations display the possibility of monocrop plantation as active sites of cross-species transformations where the bodies of *Mimosa pudica* can release nitrogen as nourishment to the soil and acquire parasitic qualities as it attaches onto lalang and human bodies.[82]

Another plant used for lalang eradication as well as protective covering across FMS rubber plantations is passion flower, *Passiflora foetida*, a plant native to the Americas, introduced and naturalised in Singapore because of its ability to climb over other plants and smother and bear them down as the

74 Maclaren, *The Rubber Tree Book*, 231.

75 Maclaren, *The Rubber Tree Book*, 233.

76 Viswanathan Selvaratnam, "Malaysia's South Indian 'Coolies': Legacies of Imperialism, Colonial Capitalism and Racism," in *Contesting Malaysia's Integration into the World Economy*, ed. Rajah Rasiah, Azirah Hashim, and Jatswan S. Sidhu (Springer Singapore, 2021): 170, https://doi.org/10.1007/978-981-16-0650-2_8.

77 Maclaren, *The Rubber Tree Book*, 233.

78 Atchison and Head, "Eradicating Bodies," 955.

79 Barua, "Plantationocene: A Vegetal Geography," 20.

80 Reardon-Smith, "In the Weeds," 4.

81 Barua, "Plantationocene: A Vegetal Geography," 19.

82 Chao, "The Beetle or the Bug?," 478.

weight of leafy matter increases.[83] An article written by M. Kelway Bamber, an English locomotive engineer of the East Indian Railway, on the *Agricultural Bulletin* in 1909 detailing the cultivation of *Passiflora foetida* to keep down other weeds, considers the traditional practice of a native tribe known by a planter in Selangor.

> Tying large double-handful of the growing grass together with a few blades of the grass itself. This completely prevents growth, and the rain in the tied bundle soon rots the growing points. By planting cuttings or seed of the Passiflora between the bundles, the whole field will be over-run in a few weeks or months and the lalang entirely destroyed.[84]

This method is emblematic of a "plantiness" described by Head, where plant bodies morphed and become an assemblage of "shared differences from other beings" with changing material forms.[85] Instead of a linear enlargement from one single characteristic, plants like passion flower grow in a nonlinear way that builds "assemblies or confederation" with other material forms and members.[86] This plant corporeality is further exemplified in the way the grown passion flower at a height of twelve inches to eighteen inches "can be rolled up like a huge carpet, leaving the surface soil in a perfect loamy condition, and quite clean and free from weeds."[87] The physical transformation of the plant body from a singular plant with extended tendrils underground to a "blanket" constituted by multiple species of weeds suggests the way plants are processes of becoming that constantly shift between specific modalities and are altered by interactions with the capitalist demands of efficient weeding.[88]

Lalang and Alternative Uses of "Weed": Land Transformation and Fluid Plant Bodies

This idea of the plant bodies as contingent to changes in their surrounding environment and species also implies the potential change of their identification as a weed in the colonial plant management regime. Another demonstration of the fluid vegetal body of lalang and the subsequent changing concepts of weeds can be seen in scientific investigations of lalang paper. In 1907, H. N. Ridley wrote in the *Agricultural Bulletin* about the potential of "lalang as a paper material."[89] In the text, Ridley identifies the

83 *Agricultural Bulletin* 8, no. 4 (1909): 8.

84 Kelway Bamber, *Agricultural Bulletin* 8, no. 6 (1909): 263.

85 Atchison and Head, "Eradicating Bodies," 955.

86 Atchison and Head, "Eradicating Bodies," 955.

87 Kelway Bamber, *Agricultural Bulletin*, 263.

88 Atchison and Head, "Eradicating Bodies," 955.

89 Henry. N. Ridley, *Agricultural Bulletin* 6, no. 11 (1907): 379.

value of "this too abundant grass" as a paper-making material.[90] As early as 1891, a concession for lalang papermaking was obtained from the Sultan of Johore, which encouraged experiments on lalang grass and the construction of a factory about four or five miles west of Johore towns and other factories on the east coast and neighbourhood of Muar to work the grass.[91] This early establishment of experiment centres to investigate the commercial potential of local resources points to the expansion of colonial authority through both the ideas of resource development and the physical construction of sites of industrialisation. Ridley highlights how the cost of cutting and delivery of lalang was estimated at less than ten shillings a ton, but the "paper manufacturers of high standings who have experimented on lalang grass have classified it as being equal to the best qualities of Esparto."[92] The transition to valuing lalang as a raw material with great economic utility once again demonstrates the fluid state of vegetal bodies contingent on their interactions with the capitalist agenda. A more detailed account of the Lalang Concession of 1891 and the potential of lalang paper is given in 1908 by Clayton Beadle, an English chemist specialising in papermaking, in the *Agricultural Bulletin*.[93] The Johore Malay Peninsular Papermaking Concession granted by H. H. the Sultan conveyed the following:

> To the Concessionaire, or to whomsoever he may assign it, a monopoly utilise for the manufacture of paper, Lalang grass and all fibrous plants that are indigenous or can be cultivated in the territory of Johore for the terms of 55 years, free of rent, taxes or import duty of any kind, in consideration of establishing the papermaking industry in the territory, and turning Lalang grass known as the pest of the country, into a valuable commercial product.[94]

This concession gave the European planters access to factory sites and permission to build roads to enhance inter-empire communication, which brings attention to the relationship between the classification of weeds, the reordering of landscapes considered idle, and commercialized agriculture. This expansion of access to the larger landscape of Johore for the cultivation of lalang and potentially rubber constitutes a process of colonial "territorialization," surveying and carving up the biota to expand the colonial rubber enterprise and systems of scientific knowledge.[95] As a result, according to Sioh, rubber estates monopolized agriculture by 1910, whether cash or

90 Ridley, *Agricultural Bulletin*, 379.

91 Ridley, *Agricultural Bulletin*, 379.

92 Atchison and Head, "Eradicating Bodies," 955.

93 Clayton Beadle, *Agricultural Bulletin* 7, no. 1 (1908): 177.

94 Beadle, *Agricultural Bulletin*, 178.

95 Sioh, "Authorizing the Malaysian Rainforest," 151.

subsistence, occupying 62 percent of the cultivated land and had become a "natural feature of [the] Malaysian environment."[96] Through the enactment of "the lalang clause," one can see how the lalang forms parts of "a mosaic of changing vegetation types" which are transformed in different directions by human activity.[97] While previously abandoned as infested land after cropping, lalang grasslands were now resources being reconfigured and engulfed by government-induced commercial competitions.[98]

While the earlier hostility towards lalang was driven by colonial modification of "untouched landscape," the return of lalang as a resource signals the constant reconfiguration of weed management in colonial commercial interests. In the book *My Tour in Eastern Rubber Lands* by Herbert Wright, written in 1908, the renowned planter describes how, at the end of the decade, planters seem to begin favouring lalang land for rubber cultivation because of its "absence of tree stumps in the soil and the relative immunity from the root fungus and white ants which such a condition gives."[99] This observation is significant, as the previously undesirable features of lalang were now regarded as advantages owing to scientific advances in weed control. The problem of parasitic fungi on rubber is explained in detail by H. N. Ridley as early as 1904 in the *Agricultural Bulletin*.[100] Primarily focusing on the fungus named *Fomes semitostus*, Ridley describes how the disease was discovered after "coolies carelessly made a large bonfire close to a row of Para rubber trees," which left the trees next to the burnt stocks sick, where the "large mass of the fruiting stage of *Fomes semitostus* was seen at the base of the trunk just pushed up above the ground and the roots being destroyed the trees perished."[101] While still perpetuating the racialising logic that associates disease with the carelessness of indentured labourers, the attacks of *Fomes semitostus* are different from lalang as it appears very slowly and is described as "contagious as opposed to an infectious fungus, as it appears to spread from root to root in the ground without being dangerously dispersed through its spores."[102] This changing preference is confirmed in a progress report in the *Agricultural Bulletin* in 1910, where planters are described to be "stubbing their estates with a view of destroying the parasitic root-fungi remaining in the ground from the relics of the original forest trees," choosing to plant on formerly despised lalang land for the same reason of it "being quite free of underground wood

96 Sioh, "Authorizing the Malaysian Rainforest," 151.

97 Potter, "The Dynamics of *Imperata*," 37.

98 Potter, "The Dynamics of *Imperata*," 38.

99 Wright, *My Tour in Eastern Rubber Lands*, 73.

100 Henry. N. Ridley, *Agricultural Bulletin* 3, (1904): 174.

101 Ridley, *Agricultural Bulletin*, 174.

102 Ridley, *Agricultural Bulletin*, 174.

and roots, likely to carry fungi."[103] This renewed interest in lalang land signifies the flexible and constructed nature of ideas of "invasiveness" as based on evolving economic priority.[104] More importantly, the "contagious" spread of *Fomes semitostus* through contact with infected stumps and the living roots of the rubber covering also suggests a vegetal agency of the fungi as well as rubber plants that traverse "dynamic boundaries," with their ability to move between states of fixture and indeterminacy, versatility, and degeneracy.[105] The failures of planters to weed or remove the disease from underground means the diseased plants will have to be pulled up and burnt completely, which also means the termination of rubber cultivation before the soil is completely disinfected, representing the way vegetal agency subverts the set temporality of rubber plantations that favours efficient timing with vegetal time.[106] Another aspect that this relationship between lalang, *Fomes semitostus*, and rubber brings attention to is the idea of "invasive networks" proposed by Paul Robbins, where the way a group of actors "gathers together, enrolls, and connects human and nonhuman actors (bureaucrats, trees, landowners) under its own momentum" mutually constitute each other and themselves.[107] The invasiveness of fungi and lalang is only relevant through their interrelationship with the soil, farmers, and trees, as well as the colonial governing structures that define and connect this narrative of species invasions.

Conclusion

Overall, this investigation on lalang has shown the violent ways in which the colonial regime of pest and plantation management has defined human-nature relationships and vegetal agency in subverting the homogeneous plantation estate in the first decade of the twentieth century. Specifically, by drawing a causal relationship between the persistence and domination of lalang and the mismanagement of the Chinese and Malay population historically, the scientific community perpetuated a hierarchy of land use based on cleanliness and successful weed management using the European scientific method. A closer look at the proposed solutions to lalang eradication has revealed how this system of weed control relied on the exploitation of land, human, and more-than-human bodies for repetitive ploughing and harvest as well as heterogeneous interspecies relations based on changing notions of economic

103 *Agricultural Bulletin* 9, no. 4 (1910): 132.

104 Reardon-Smith, "In the Weeds," 6.

105 Atchison and Head, "Eradicating Bodies," 955.

106 Barua, "Plantationocene: A Vegetal Geography," 20.

107 Paul Robbins, "Comparing Invasive Networks: Cultural and Political Biographies of Invasive Species," *Geographical Review* 94, no. 2 (2004): 153, https://doi.org/10.1111/j.1931-0846.2004.tb00164.x.

worth and constructed notions of invasiveness that changed throughout the period. However, vegetal agency and the uncertainty of ecological disturbances that subverted plantation time based on commercial demands and imposed spatial boundaries demonstrate the narratives of negotiation and friction central to understanding the agricultural production of rubber.

Collaboration Through Friction: The Māori Cosmovision and Rights of Nature Along the Whanganui River

ABSTRACT

The Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 was a landmark case where the Whanganui iwi (tribe) of the Māori cosmovision collaborated effectively across difference to exceed the boundaries of a universalism known as Rights of Nature (RoN), making new forms of politics possible in Aotearoa New Zealand. Through its ground-breaking political arrangement, a specific natural entity, Te Awa Tupua (the Whanganui River), was granted legal personhood. Inspired by Anna Tsing's *Friction*, this paper traces the contingent lineages of the Māori cosmovision and RoN discourse to show how RoN gains relevancy and operates through friction. Critically, it established a detailed legal structure indicating how the river should be represented, institutionalizing Māori ideas of a usage-centered and reciprocal, kinship-based relationship with nature. Rather than pursuing the human rights-inspired Rights of Nature of the modernist cosmovision, the Whanganui iwi focused on the management of people, alongside both their responsibilities towards and relationships with nature, deemed appropriate to their socio-natural landscape.

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1. Introduction

In *Pluriversal Politics: The Real and the Possible*, Colombian American anthropologist Arturo Escobar insists that beyond the "heteropatriarchal capitalist modern/colonial world system," hereafter *modernist cosmovision*, "another possible is possible."[1] He argues that instead of a universe, we exist within a pluriverse, "a world where many worlds fit," each with their own onto-epistemology, or rather *cosmovision*.[2] Cosmovisions are the world-constructing visions of what life is, based on implicit premises arising from particular histories. Within any onto-epistemology there is of course internal heterogeneity, but cosmovision here works as a shorthand that captures both internal commonalities as well as the external hierarchy of power that has formed between different cosmovisions. The modernist cosmovision, then, is first and foremost an epistemology of colonial domination with a long postcolonial afterlife. Drawing inspiration from his words and an analytical framework from Anna Tsing, this paper attempts to trace the contingent lineages formed in "the grip of encounter"[3] as the Whanganui River in Aotearoa[4] New Zealand was granted legal personhood in 2017.

This case falls within the Rights of Nature (RoN) movement, which promotes the inherent rights of ecosystems and species using a Western legal framework. It is noteworthy in that there was significant Indigenous involvement by Māori in all stages of the legal process. RoN discourse was used in novel ways, ultimately leading to the Whanganui River likely becoming the first river in the world to gain legal personhood.[5] RoN is a Western legal universalism, which took form in the 1970s, that seeks to challenge the modernist view of nature as a passive resource for extraction. Inspired by Indigenous beliefs, various religious traditions and Western human rights discourse, it has since manifested in unique socio-spatial forms across different local and international scales. This paper traces the genealogies of the Māori cosmovision and the emerging global discourse of RoN to the moment of their historic interaction.

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1 Arturo Escobar, *Pluriversal Politics: The Real and the Possible* (Duke University Press, 2020), xii, ix.

2 Escobar, *Pluriversal Politics*, ix, 121–122.

3 Anna Lowenhaupt Tsing, *Friction: An Ethnography of Global Connection* (Princeton University Press, 2005), 5.

4 Aotearoa is the Māori word for New Zealand, originally it referred to only the North Island but has since been expanded to include all of the state. "Aotearoa," Te Aka Māori Dictionary, accessed March 28, 2026, https://maoridictionary.co.nz/.

5 New Zealand Parliament, "Innovative bill protects Whanganui River with legal personhood," New Zealand Parliament, updated 28 March 2017, https://www.parliament.nz/en/get-involved/features/innovative-bill-protects-whanganui-river-with-legal-personhood/.

In *Friction*, US American anthropologist Anna Tsing asks, "how do political models from elsewhere become relevant?"[6] Rather than explain what RoN as a universalism *is*, this paper looks at how RoN gains relevancy and *operates* through friction, specifically how certain features of the discourse were used, modified and added onto by the Whanganui iwi (tribe) in this case study. Tsing's concept of friction, emerging from and describing "the sticky materiality of practical encounters" through which universalisms like the Rights of Nature movement are enacted, demonstrates how RoN can be both a project of the modernist cosmovision, while at the same time also translated and locally reconfigured as a tool for transition into a more pluriversal reality.[7] Rights of Nature is a "social project" with local particularities grown from culturally diverse and spatially far-flung collaborations.[8] In each zone of awkward engagement, "words mean something different across a divide even as people agree to speak."[9] Friction is the two-way force that both slows things down, and is responsible for movement. Regarding Tsing's terminology, a universalism is "knowledge that moves across localities and cultures," where movement is a force that allows "globally circulating terms, theories, and stories" to be "harnessed for local uses."[10] This local usage is achieved through translation, which involves "remaking ideas, practices, and local, regional, and global histories."[11] Finally, translation occurs in particular socio-natural landscapes, defined as "the configuration of humans and nonhumans across a terrain."[12]

In this article, I argue that two particular cosmovisions interact in the case of Te Awa Tupua (Whanganui River Claims Settlement) Act 2017: the modernist cosmovision of the Aotearoa New Zealand executive government, "the Crown,"[13] populated by its ontologically separate urban-moderns;[14] and the pluriversal cosmovision of the Māori, characterized by its radical relationality, territoriality and ancestrality. In this cosmovision, land exists as a social place threaded with enduring "biographical connections" linking past

6 Tsing, *Friction*, 215.

7 Tsing, *Friction*, 1.

8 Tsing, *Friction*, 12, ix.

9 Tsing, *Friction,* xi.

10 Tsing, *Friction*, 7, 215.

11 Tsing, *Friction*, 212.

12 Tsing, *Friction*, 173.

13 "The Crown" is used today to refer to the executive branch of Aotearoa NZ government, and I use this wording throughout the article to acknowledge the persistent colonial effects of Queen Victoria's government's treaty with Māori rangatira still felt to this day. See "Sovereign of New Zealand," Department of the Prime Minister and Cabinet, New Zealand Government, updated April 19, 2023, https://www.dpmc.govt.nz/our-business-units/cabinet-office/supporting-work-cabinet/cabinet-manual/1-sovereign-governor-1.

14 Escobar, *Pluriversal Politics*, xiv, 15.

and future to location.[15] This theoretical perspective will be used to attempt to answer the question: In the case of Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, how were new forms of politics made possible in Aotearoa New Zealand both despite and because of friction between the Māori cosmovision and the modernist cosmovision's Rights of Nature discourse? To answer this question, the Māori cosmovision and RoN discourse will be analyzed and their lineages traced, with particular focus on how they converge in this case study. It is the ultimate aim of this paper to show how the Earth is not just one world that individuals and groups must coordinate across, but instead consists of many distinct cosmologies which must be navigated on their own terms.

1.1 Statement of Positionality

I am a white, cis woman who grew up in a small, predominantly white, upper middle-class town north of the Metro Detroit area of Michigan, USA. My academic background is in political science, specifically public policy, and Chinese studies.[16] Following Lauren Tynan's understanding of research as relation, I would like to briefly acknowledge the genealogy of this research project.[17] This article and I have co-become together from the idea's initial formulation in the seminar Decolonizing Anthropocene Origins taught by Dr. Frederik Schröer, where my interest in the more-than-human was first sparked. We then further developed under the guidance of Dr. Andrea Fleschenberg dos Ramos Pinéu in her seminar Negotiating Research Ethics where I was first introduced to decolonial and Indigenous methodologies and was encouraged to reflect on my own research practices. Finally, Dr. Sarah Bellows-Blakely's seminar Silencing and Disconnections in Global History introduced me to Anna Tsing's concept of friction, which guided my analysis of this case. My background and the genealogy of this research project have blended to become this political science-infused, critical anthropology-informed historical research project, which I hope opens up new lines of thought through its hybridity.

There are significant weaknesses in this paper due to my positionality:

15 Tsing, *Friction*, 190.

16 The River & Fire Collective caution that "positionality can be limited to a confessional style check list of, 'yes, I am a white (cis) man/woman, and I know that this affects my data,'" and instead assert that "positioning is relational and should be accountable, meaning that writings on positionality in research should include descriptions of your relationships to people whom you create knowledge with." The River & Fire Collective, "The Fires Within Us and the Rivers We Form," *Teaching Anthropology* 10, no. 4 (2021): 100, https://doi.org/10.22582/ta.v10i4.627.

17 Lauren Tynan, "Thesis as Kin: Living Relationality with Research," *AlterNative: An International Journal of Indigenous Peoples* 16, no. 3 (2020): 163–170.

I have no kinship to the Māori people or Aotearoa New Zealand, I have no formal background in Indigenous studies or Indigenous methodologies, and I am a native English speaker with no prior knowledge of the Māori language (hereafter: te reo Māori[18]). Nevertheless, this landmark case is of particular relevance to the history of Rights of Nature and environmental history more generally and deserves "outsider" interest and study. While it is my aim to highlight how other "worlds and ways of worlding life" possess unique onto-epistemologies that can open new variations for thought and practice, my more personal aim is to familiarize myself with other ways of being in a more historically grounded and less theoretical manner.[19]

1.2. Structure of Paper

The following section defines key Māori concepts underpinning their particular onto-epistemology. Section three explores Rights of Nature as a traveling universalism—the particular modernist cosmovision it arises from, its implicit premises, and their implications for its instrumentalization.[20] Section four

18 Due to the role of language in the history of oppression by the Crown over the Māori, as well as te reo Māori's heavy usage in official Aotearoa New Zealand state documents today, Māori words will be used frequently throughout this paper. From the enactment of the Native Schools Act 1867 to the 1970s when revitalization efforts finally began to gain momentum, te reo Māori was discouraged in schools, often with corporal punishment, in favor of English. It was not until the Māori Language Act 1987 was passed that te reo gained official status in Aotearoa New Zealand.
In acknowledgement of the repression te reo Māori has faced in Aotearoa New Zealand, te reo usage conventions will be honored to the best of my ability throughout this paper. The translations given cross-reference both Te Ara – The Encyclopedia of New Zealand and Te Aka Māori Dictionary, through their online portals. While the translations and explanations of concepts are simplified, they hopefully provide a starting point for those from different cosmovisions, and enable a more nuanced understanding of the historical context and debates at hand. There is a Glossary after the Conclusion for quick reference.
See Rawinia Higgins and Basil Keane, "Te reo Māori – the Māori language," Te Ara - the Encyclopedia of New Zealand, accessed March 18, 2026, http://www.TeAra.govt.nz/en/te-reo-maori-the-maori-language; New Zealand Government, *Native Schools Act 1867 (31 Victoriae 1867 No 41)* (Wellington, 1867), accessed March 18, 2026, https://www.nzlii.org/nz/legis/hist_act/nsa186731v1867n41290/; "Māori–Pākehā relations - Māori renaissance," Te Ara - the Encyclopedia of New Zealand, accessed March 18, 2026, http://www.TeAra.govt.nz/en/maori-pakeha-relations/page-6; "Compulsory classes will help right the wrong after Te Reo Māori 'beaten' out of school children a generation ago – Sir Pita Sharples," 1News, accessed March 18, 2026, https://www.1news.co.nz/2018/09/09/compulsory-classes-will-help-right-the-wrong-after-te-reo-maori-beaten-out-of-school-children-a-generation-ago-sir-pita-sharples/; "About this site," Te Ara – the Encyclopedia of New Zealand, accessed March 28, 2026, https://teara.govt.nz/en/about-this-site; "Who is Te Ara?" Te Ara – the Encyclopedia of New Zealand, accessed March 28, 2026, https://teara.govt.nz/en/who-is-te-ara; "Māori Dictionary Project," Te Aka Māori Dictionary, accessed March 28, 2026, https://maoridictionary.co.nz/dictionary-info; "Sources and acknowledgements," Te Aka Māori Dictionary, accessed March 28, 2026, https://maoridictionary.co.nz/dictionary-project.

19 Escobar, *Pluriversal Politics*, 26.

20 Escobar, *Pluriversal Politics*, 122.

evaluates the case itself, parsing out the structural elements of the Te Awa Tupua Act and explaining how RoN discourse was used as an effective tool for transition by Māori negotiators. The final section returns to the overarching themes of friction and collaboration and reiterates how RoN was used by the Whanganui iwi through the process of translation, making the Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 a prime example of how universalisms must be operationalized differently within specific socio-natural landscapes.

2. The Treaty of Waitangi and the Māori Cosmovision

The 1840 Treaty of Waitangi, signed by the Crown and many Māori iwi rangatira (chiefs), is the founding document of Aotearoa New Zealand and lays the foundation for the current relationship between Māori and the Crown government. Crucially, it had both an English and Māori text which created fundamentally different expectations regarding sovereignty.[21] Aside from one sheet of signatures where the text was written in English, all other rangatira signed the te reo Māori version of the treaty.[22] In the First Article's English text, Māori leaders gave "sovereignty" to the Queen; in the Māori text, they gave "kawanatanga" (governorship) over their land. As sovereignty has no direct Māori equivalent, the transliteration of "governance" was used instead, leading Māori to believe they still maintained absolute authority within their territories and were entering into a system of power sharing and partnership. Moreover, in the Second Article, not only in the English text were Māori guaranteed possession of their territories, but in the Māori text they were specifically guaranteed tino rangatiratanga (self-determination).[23] The unfulfilled assurance of tino rangatiratanga, the belief that "tikanga[24] would remain as the first law of Aotearoa," and disrespect of their mana (prestige) have been the basis of disputes between Māori and the Crown, and eventually prompted the establishment of the Waitangi Tribunal in 1975, to resolve

21 Carwyn Jones, "Tino Rangatiratanga and Sustainable Development: Principles for Developing a Just and Effective Environmental Law in Aotearoa," *Te Tai Haruru Journal of Māori and Indigenous Issues* 3 (2010): 59–74, https://cdn.auckland.ac.nz/assets/law/Documents/2021/our-research/Te-tai-haruru-journal/Vol3/Te%20Tai%20Haruru%20Journal%203%20(2010)%2059%20Jones.pdf.

22 Manatū Taonga — Ministry for Culture and Heritage, "Treaty sheets and signing locations," updated May 28, 2024, https://nzhistory.govt.nz/politics/treaty/making-the-treaty/treaty-of-waitangi-signing-locations.

23 Manatū Taonga – Ministry for Culture and Heritage, "Differences between the texts," accessed March 28, 2026, https://nzhistory.govt.nz/page/differences-between-texts.

24 "Tikanga" is defined as "correct procedure; the customary system of values and practices that have developed over time and are deeply embedded in the social context." "Tikanga," Te Aka Māori Dictionary, accessed March 28, 2026, https://maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&histLoanWords=&keywords=tikanga.

disagreements over Treaty interpretations and land.[25]

2.1. Key Concepts of the Māori Cosmovision

Before further delving into the historical developments culminating in the Te Awa Tupua Act 2017, it is important to spend time exploring integral ideas of the Māori cosmovision, especially as they pertain to their interrelationship with nature and land, which highlight the structural differences between the Māori and modernist cosmovisions. Please note, however, that these are views of the Māori *in general*. There are variations across time and between different iwi (tribes), generations and individuals. Nevertheless, these concepts are utilized in the enactment of certain aspects of RoN discourse and as a mobilizing political force in Aotearoa New Zealand.[26]

Whenua (land) also means "placenta,"[27] and is conceived of very differently in the Māori cosmovision than by urban-moderns, those who operate from within the modernist cosmovision.[28] In the modernist cosmovision, man has God-given sovereignty over the natural world, and in many cases must subdue or master nature. The Māori cosmovision views whenua not as a commodity they have mastery over, but rather as the source of their identity linking them to past and future generations.[29] Iwi are the tribe, literally "bones," who are bound by descent from a shared ancestor. Each iwi consists of many hapū (subtribes or clans), literally "to be conceived." Finally, each hapū includes whānau (family groups), literally "to be born." It becomes clear from the direct translations that the concepts of land and kin are intimately linked. Pepeha, traditional Māori personal introductions that offer a perspective on where one comes from and what one is connected to, not only include the human aspects of their genealogy (their iwi, hapū, whānau, etc.)

25 Charpleix, Liz, "The Whanganui River as Te Awa Tupua: Place-Based Law in a Legally Pluralistic Society," *The Geographical Journal* 184, no. 1 (2018): 20–21, https://doi.org/10.1111/geoj.12238.

26 It is important to note that while the picture painted here might seem idyllic, no culture or cosmovision is flawless. Problems existed—and exist—within Māori society, but listing them here is beyond the scope and authority of this paper.

27 The traditional practice of burying the whenua/placenta in the whenua/land after a baby's birth is still practiced to this day. See Te Ahukaramū Charles Royal, "Papatūānuku – the land – Whenua – the placenta," Te Ara – the Encyclopedia of New Zealand, accessed March 28, 2026, https://teara.govt.nz/en/papatuanuku-the-land/page-4 and "Whenua to Whenua," Home Birth Aotearoa, accessed March 28, 2026, https://homebirth.org.nz/whenua-to-whenua/. The literal connection is characterized in the expression "Whenua ki te whenua/Whenua to whenua."

28 Escobar, *Pluriversal Politics*, 15.

29 Ministry of Justice, *He Hīnātore ki te Ao Māori: A Glimpse into the Māori World. Māori Perspectives on Justice* (Ministry of Justice, 2001), 43–44, https://www.justice.govt.nz/assets/he-hinatora-ki-te-ao-maori.pdf.

but also reference tribal boundaries and other landmarks such as mountains and rivers that have specific significance for that iwi/hapū/whanau.[30] In the Māori cosmovision, the world is viewed as a complex family, ultimately sharing the same ancestors, within a vast family tree.

Mauri, "the natural bent of a thing" is the life force that joins and animates all beings—human and non-human—as part of an interdependent whole, where each part depends "for its well-being upon the health of each other part."[31] This restricts human intervention in the environment to actions that maintain balance.[32] Closely tied to mauri is mana (spiritual power, prestige and authority). Because a being has mauri, it has some degree of mana. A place is understood through its various resources and uses, and understanding of the mauri of a place relies on careful attention during repeated interactions.[33] Humans and other animals can make *reasonable use* of natural beings and features, so long as mana and mauri are respected. Appendix 1 of the National Policy Statement for Freshwater Management 2014 specifically includes this Māori tikanga (practice, convention) through its inclusion of the health and mauri of the water as one of two compulsory national values for fresh water.[34] A river flourishes according to its bent (mauri) when it is considered as an ecosystem. It is through this culturally distinct way of recognizing the environment that urban-moderns can begin to understand the onto-epistemology of the Māori.

Due to shared ancestry and the importance of relationality, whakapapa (genealogy, literally "to place in layers") is used to explain relations between things. It places the self in the world through connection to human and non-human ancestors. Through these interwoven descent lines, maintained through obligations and reciprocity, rights to collect and harvest particular animals or resources are passed down to different hapū, "tangling across the

30 For an example and further elaboration, see University of Otago, "Mihi – Introductions," accessed April 1, 2026, https://www.otago.ac.nz/maori/world/te-reo-maori/mihi-introductions and Emile Donovan, "The Anatomy of a Pepeha," RNZ, accessed March 28, 2026, https://www.rnz.co.nz/programmes/the-detail/story/2018858864/the-anatomy-of-a-pepeha.

31 New Zealand, Waitangi Tribunal, *The Whanganui River Report* (WAI 167) (GP Publications, 1999), 39, https://ngatangatatiaki.co.nz/assets/Uploads/Important-Documents/Whanganui-River-Report-1999.pdf; John Patterson, "Respecting Nature: A Maori Perspective," *Worldviews* 2, no. 1 (1998): 70.

32 Patterson, "Respecting Nature," 71.

33 Mihnea Tănăsescu, *Understanding the Rights of Nature: A Critical Introduction* (Transcript, 2022), 84–85, 91.

34 Ministry for the Environment, *National Policy Statement for Freshwater Management 2014* (ME1 1155), (New Zealand Government, updated 2017), 6, 20, https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2014/.

landscape in overlapping patterns of seasonal residence and harvest."[35] This is vastly different from the modernist cosmovision's grid-like division and quantification of territories.

As the Māori are cousins with other beings and natural features through whakapapa, they have obligations to promote the welfare of the land's whānau, just as they have social obligations to their human whānau.[36] These obligations take the form of kaitiakitanga (guardianship). The people with the authority to act on behalf of the mauri of a region derive their authority through whakapapa linked to that place, which allows them to make use of the land but also places the obligation of kaitiakitanga with that group.[37] Tino rangatiratanga (absolute sovereignty; from rangatira – chief; literally "absolute chiefly authority") is the manifestation of the political aspects of mana linked to a particular territory, where the rangatira leads in a way that ensures the iwi preserves its mana.[38] The Māori notion of sovereignty is completely different from that of a modernist sovereignty where dominion over a large area is given to a single person.[39] It instead emphasizes a specific iwi's authority in their own territory and in their kinship groups' affairs.

When landscapes are looked at as a whole, as in the Māori cosmovision, rather than in a nonsocial way, these areas become features of that group's whakapapa, identity and mana. "Interpreting a landscape in its entirety, therefore, requires an understanding of the relationships between people and their environment over time, and an understanding that sites are reference points of a cultural value system."[40] While vastly simplified, the above concepts, with regards to the case discussed in this article, compose tikanga,

35 Anne Salmond, Gary Brierley, and Dan Hikuroa, "Let the Rivers Speak: Thinking about Waterways in Aotearoa New Zealand," *Policy Quarterly* 15, no. 3 (2019): 46, https://doi.org/10.26686/pq.v15i3.5687.

36 Māori Marsden, "Kaitiakitanga: A Definitive Introduction to The Holistic World View of the Māori," in *The Woven Universe: Selected Writings of Rev. Māori Marsden*, ed. T.A. Henare (The Estate of Rev. Māori Marsden, 2003), 66, https://www.academia.edu/16394238/Kaitiakitanga_A_Definitive_Introduction_To_The_Holistic_World_View_Of_The_Maori.

37 Ministry of Justice, *He Hīnātore ki te Ao Māori*, 49–50.

38 Ropata Paora et al., "Tino Rangatiratanga and Mana Motuhake: Nation, State and Self-Determination in Aotearoa New Zealand," *AlterNative: An International Journal of Indigenous Peoples* 7, no. 3 (2011): 246–57, 249; Margaret Mutu, "Mana Māori Motuhake: Māori concepts and practices of sovereignty," in *Routledge Handbook of Critical Indigenous Studies*, ed. Brendan Hokowhitu et al. (Routledge, 2021), 269–82.

39 Ropata Paora et al., "Tino Rangatiratanga and Mana Motuhake: Nation, State and Self-Determination in Aotearoa New Zealand," *AlterNative: An International Journal of Indigenous Peoples* 7, no. 3 (2011): 250.

40 Merata Kawharu, "Ancestral Landscapes and World Heritage from a Māori Viewpoint," *The Journal of the Polynesian Society* 118, no. 4 (2009): 326, https://www.researchgate.net/publication/287630217_Ancestral_landscapes_and_world_heritage_from_a_maori_viewpoint.

the customary law of Aotearoa, and the system by which the proper course of action is determined.[41] These ideas form the material and representational practices that make up the socio-natural landscape upon which Rights of Nature discourse then enters the fray.[42]

3. Rights of Nature: A Universalism That Travels

This section examines the Rights of Nature (RoN) discourse, an emerging project shaped through the frictions of collaboration encountered as it travels through various socio-natural landscapes. While RoN can be a tool for change, it is crucial to trace the genealogies through which present forms have emerged.[43] Following these lineages makes RoN's premises and their implications explicit, so that the project can be viewed through a more critical lens. At its best, RoN insists nature has intrinsic value beyond utility, and treats nature as a legal personality at an ecosystem level that includes humans.[44] Ideally, RoN opposes the modernist cosmovision's human-nature dualism, where nature is considered a passive resource or as property for human extraction.[45] My analysis has been guided by a variety of secondary sources, especially work within the discipline of political science. Instrumental were Mihnea Tănăsescu's comprehensive look at the theory and practice of RoN in *Understanding the Rights of Nature: A Critical Introduction*; Kauffman and Martin and their scholarship on the construction of RoN laws across the US, Ecuador and Aotearoa New Zealand; and Rafi Youatt's research on collective personhood, translation and law in Ecuador and Aotearoa.

3.1. Rights of Nature's Genealogy

RoN is what Tsing might call a "charismatic transnational package" offering tools for local actors, where "each deployment of the concept … 'locks in' to larger projects of governance and political identification."[46] While many Indigenous cosmovisions have long held radically relational understandings of their worlds, it is important to trace RoN's intellectual origins from within the

41 Charpleix, "The Whanganui River as Te Awa Tupua," 21.

42 Tsing, *Friction*, 174.

43 Tsing, *Friction*, 127.

44 Ashis Kothari, Ariel Salleh, Arturo Escobar, Federico Demaria, and Alberto Acosta, eds., *Pluriverse: A Post-Development Dictionary* (Tulika Books and Authorsupfront, 2019), 245; Craig M. Kauffman, and Pamela L. Martin, "Constructing Rights of Nature Norms in the US, Ecuador, and New Zealand," *Global Environmental Politics* 18, no. 4 (2018): 48, https://doi.org/10.1162/glep_a_00481.

45 Kothari et al., *Pluriverse*, 159, 246.

46 Tsing, *Friction*, 236; Eden Kinkaid, "'Rights of Nature' in Translation: Assemblage Geographies, Boundary Objects, and Translocal Social Movements," *Transactions of the Institute of British Geographers* 44, no. 3 (2019): 559, https://doi.org/10.1111/tran.12303.

modernist ontology and its initial permutations across space. US lawyer and legal scholar Christopher Stone is considered the first to have written on RoN (in 1972) in response to the unsuccessful lawsuit *Sierra Club v. Morton*, where it was ruled the Sierra Club lacked legal standing to contest the development of California's Sierra Nevada mountains by Walt Disney Enterprises, Inc.[47] His main argument concerned how legal standing for nature is a recognition of the moral standing law has failed to recognize.[48] An ecotheological, rather than pragmatic strand of RoN emerged formally in 2001 with Thomas Berry's concept of "earth jurisprudence" discussed in Cormac Cullinan's *Wild Law* in 2003.[49] This ecotheological strand blended the morality of human rights discourse with a more spiritual conception of an Earth-wide nature, sometimes referred to as Gaia or through other religious ideas. While greatly simplified, these two strands of RoN have influenced its manifestations in two key cases prior to the Te Awa Tupua Act 2017.

The US and Ecuador have both enacted RoN in landmark actions. In 2006, the Tamaqua Borough in Pennsylvania, USA attempted to ban toxic dumping in their community through RoN. The Community Environmental Legal Defense Fund (CELDF), while implicitly including the ecotheology of Berry and Cullinan to justify their reasoning on moral grounds, relied heavily on Stone's legal standing focus to frame RoN as defending local democracy by expressing community rights.[50] Indigenous actors were not involved and the environment was not framed as a spiritual being. This and many similar RoN actions have since been overturned in the US due to the relative weakness of municipal law vis-à-vis state and national law. It could be said that RoN had not yet become an "engaged universalism," in Tsing's language, capable of bridging "aspiration and practical achievement" as it travelled across difference.[51] In 2008, Ecuador became the first country to enshrine RoN in its constitution. Its 2007 rewriting allowed a constellation of actors to encode their unique version of RoN within law.[52] CELDF helped draft the RoN Articles, this time with a strong ecotheological strand.[53] Significantly, Indigenous groups played a central role in propelling President Rafael Correa to power, and therefore also shaped

47 Christopher D. Stone "Should Trees Have Standing? – Towards Legal Rights for Natural Objects," *Southern California Law Review* 45 (1972): 450-501; Tănăsescu, *Understanding the Rights of Nature*, 20–21.

48 Tănăsescu, *Understanding the Rights of Nature*, 22–23.

49 See Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice* (Chelsea Green, 2003).

50 Tănăsescu, *Understanding the Rights of Nature*, 48; Kauffman and Martin, "Constructing Rights of Nature Norms," 53.

51 Tsing, *Friction*, 8, 85.

52 Kauffman and Martin, "Constructing Rights of Nature Norms," 53.

53 Tănăsescu, *Understanding the Rights of Nature*, 53.

much of the language used in the Articles.[54] The RoN of Ecuador's constitution specifically recognized nature as a spiritual being and is perhaps the most expansive case of rights for nature. However, as ultimate authority is left to the state, conflicting interests of economic development and conservation have led to weak enforcement.

These two cases represent a broad recognition of nature's right to exist, function and flourish; implicitly and (in Ecuador's case) explicitly, using the moralizing ecotheological notion of an Earth-wide nature inherently possessing rights—which closely mirror human rights—that need to be respected. Aotearoa New Zealand represents a subsequent lineage of RoN which focuses on specific natural entities and legal personhood, without generalizing nature or holding a moralizing focus on rights, and will be explored in the fourth section of this paper.

3.2. Rights of Nature's Implicit Premises

Norms of value, property and ownership—which form the basis of the legal system of the modernist cosmovision—are part of broader belief systems that have always been contested. While often presented as a solution to the environmental crisis, RoN discourse does not necessarily represent the fundamental shift in structure and values needed to transition to a pluriversal politics "where many worlds fit."[55] RoN theory and practice instrumentalize "legal personhood" and "legal standing" (locus standi) to give nature *legal* rights. While nature as a legal object must address harm through owners' and property rights, nature as a legal subject—a legal person—has "the capacity to bear rights and duties in law."[56] Legal personality is a pragmatic legal fiction that enables rights and duties while sidestepping the thorny philosophical issues of what constitutes psychological and ethical personhood.[57] For a legal person to have locus standi, they must demonstrate a reasonable connection to the action or law in question.[58] In the modernist cosmovision, locus standi requires a proven (by modernist logic) cause-and-effect connection to the contested action to justify intervention, rather than in the Māori cosmovision where connection through whakapapa grants authority to intervene. The legal

54 Rafi Youatt, "Personhood and the Rights of Nature: The New Subjects of Contemporary Earth Politics," *International Political Sociology* 11, no. 1 (2017): 48, https://doi.org/10.1093/ips/olw032.

55 Escobar, *Pluriversal Politics*, ix.

56 Erin O'Donnell, Anne Poelina, Alessandro Pelizzon, and Cristy Clark, "Stop Burying the Lede: The Essential Role of Indigenous Law(s) in Creating Rights of Nature," *Transnational Environmental Law* 9, no. 3 (2020): 408, https://doi.org/10.1017/S2047102520000242.

57 Youatt, "Personhood and the Rights of Nature," 43.

58 Lidia Cano Pecharroman, "Rights of Nature: Rivers That Can Stand in Court," *Resources* 7, no. 1 (2018): 13, https://doi.org/10.3390/resources7010013.

uncertainty of when and on what basis nature holds locus standi has been an ongoing issue with RoN.

RoN recognizes the intrinsic worth of nature through the Enlightenment human rights tradition. In its ecotheological strand, humans are simply recognizing rights that are already there. The expansion of human rights follows a "moral" evolution where increasingly more rightless "things" (slaves, women, corporations…) are included as "subjects" worthy of rights.[59] Man's ultimate role of "conscious guardian" is complete when the rights of nature are finally recognized.[60] Furthermore, ecotheological RoN frequently views nature as a unitary whole upon which governments need to coordinate and manage their differences more effectively to achieve common—often modernist—goals.[61] By contrast, respect for nature in the Māori cosmovision arises from recognition that all things are connected by mauri, and through a complex web of whakapapa each being or object has individual mana that must be cared for by those related to that location. While the RoN activist package has been learning from Indigenous cosmovisions and attempting to incorporate their values as it travels, they often become imperfect approximations "when they are unmoored from the contexts of culture and politics from which they emerged."[62] For example, preserving traditional ways of life becomes preserving a harmonious Eden, where the nuances of "balance" and other unique, pluriversal concepts get lost in translation.

3.3. Implications: Positive and Negative

The modernist cosmovision does its best to cannibalize RoN and incorporate it within its framework. This diminishes its radical intentions, especially as its orthodoxy (i.e., Stone, Berry and Cullinan) were arguably already thinking from within the confines of a generalizing ontology. Rights-based approaches rely on the very states they are seeking to subvert for their enforcement. The Māori cosmovision comprises a different explanation of the intrinsic value of non-human beings and objects, one that moves beyond dualisms. Instead, value exists through radical relationality, where if one being is positively or negatively affected, so are its human and non-human kin through whakapapa. It is truly humans being *with* nature, holding a place within the meshwork of a territory. The opposite of anthropocentric does not mean the human is removed from the picture. Māori balance is not a form of Edenic balance where nature remains pure but is instead reasonably used through an economy of

59 Tănăsescu, *Understanding the Rights of Nature*, 39.

60 Tănăsescu, *Understanding the Rights of Nature*, 88.

61 Youatt, "Personhood and the Rights of Nature," 41.

62 Tsing, *Friction*, 234.

reciprocity that indicates how humans should act in order to encourage a mutually thriving relationship. Reasonable use of resources that maintains a proper flow of mauri guarantees the health of all beings in that socio-natural landscape. Ecotheological nature is broad and flat, with no flexibility. The nature of territory-peoples practicing "place-thought" is specific, textured and flows with changing socio-spatial conditions.[63]

Despite its shortcomings, RoN has had some success where environmental regulations have failed. Even where it has been ineffective, proponents hope that these legal changes will lead to a change in the urban-modern mindset. In many cases, Indigenous groups are leading the RoN push and helping to move law beyond its fundamental conceptualization of nature as property reduced to economic or instrumental value for humans—from a resource extraction model towards a partnership. When Indigenous concepts are incorporated into settler-colonial laws, this incorporation becomes codified validation of Indigenous land management practices and ways of thinking. Their strategic use of modernist legal frameworks and concepts like "legal personhood" become a way of decolonizing the law from within, establishing their interests and instigating a societal value shift that includes their own cosmovision. RoN is a paradigm shift rather than an introduction of something new,[64] and it is important to guard against the partial incorporation or simplification of Indigenous cosmovisions. It is debatable whether RoN can fundamentally confront the modernist ontology, but it is a tool that, when anchored to a socio-natural landscape like the Whanganui River, affords new possibilities for pluriversal politics. As this universalism traveled, it encountered resistance in some areas and found traction in others, the two sides of friction.

4. Whanganui River Meets Te Awa Tupua

It was around the time when Stone had published "Should Trees Have Standing?" that the Whanganui iwi entered into their legal battle with the Crown over ownership of the Whanganui River, or Te Awa Tupua,[65] whom they consider their ancestor. Negotiations eventually started—and stalled—and started again between 2002 to 2009, with the issue of ownership being particularly contentious. Stone's writings and the RoN legal case of Tamaqua Borough, along with that particular strand of pragmatic usage of legal personhood,[66] helped inspire the solution to this main obstacle when

63 Tănăsescu, *Understanding the Rights of Nature*, 44.

64 Cano Pecharroman, "Rights of Nature," 1.

65 The Māori name for the Whanganui River, literally "a river from the ancestral realm," see Salmond et al., "Let the Rivers Speak," 49.

66 Kauffman and Martin, "Constructing Rights of Nature Norms," 57.

negotiators realized ownership could be taken off the table if Te Awa Tupua was returned to *itself*. If the Whanganui iwi's main goal was respect for the river as a whole, spiritual being[67] and the ability to protect it as an ancestor, then legal personhood status could be an approximation of that within the modernist ontology. In this way, the Crown did not have to transfer ownership to the Whanganui iwi, and the Whanganui iwi no longer had to see Te Awa Tupua under the ownership of the Crown. A deed of settlement was passed in 2014 and was approved as an Act of Parliament in 2017.[68]

4.1. Structure of the Act

The Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 is prime example of how RoN discourse becomes translated and operationalized within a specific socio-natural landscape, where Māori and modernist cosmovisions interact and compete through friction. Without a "common vocabulary or ontology," approximate translations of Māori concepts and modernist principles had to be found.[69] First among these is the distinction in the Act between the "Whanganui River" and "Te Awa Tupua," where Whanganui River refers to its physical components and Te Awa Tupua to its entirety, including metaphysical elements.[70] Legal personhood is granted to Te Awa Tupua rather than to the Whanganui River, respecting the Māori cosmovision, and names the river and the Whanganui iwi as inalienably connected, with their health and well-being mutually interlinked.[71] The Te Awa Tupua Act, therefore, is not solely about protecting nature, but is also motivated by unequal power relations and the promotion of Indigenous agency within a colonial regime, to preserve Māori particular kinship relationality with their land.

Giving Te Awa Tupua legal personhood status could have driven it into the legal and moral quagmire surrounding RoN discussed in the previous section, but critically, it establishes a very specific representational structure that sets it apart from the US and Ecuadorian cases. Te Pou Tupua, the "human face of Te Awa Tupua," is established as its representative, where one appointee stands for the interests of the Whanganui iwi, and the other for the Crown.[72] Two bodies are then tasked to support it: an advisory group, Te Karewao, consisting of three core Māori and Crown appointees along with temporary advisors; and a strategy group, Te Kopuka, consisting of a mixed

67 Kauffman and Martin, "Constructing Rights of Nature Norms," 57.
68 Kauffman and Martin, "Constructing Rights of Nature Norms," 58.
69 Youatt, "Personhood and the Rights of Nature," 50.
70 Te Awa Tupua Act 2017, sec. 7, sec. 12.
71 Youatt, "Personhood and the Rights of Nature," 49.
72 Tănăsescu, *Understanding the Rights of Nature*, 88; Te Awa Tupua Act 2017, sec. 20.

assembly of no more than 17 representatives with interests in the river.[73] Te Kopuka is especially unique, as it specifically designates ten interests with permission to become involved, ranging from tourism to the Genesis Energy Limited power company, and how many members from each can be appointed (i.e., five members from the iwi and one from conservation interests).[74] This institutional structure works to bring together opposing cosmovisions and protects the well-being of Te Awa Tupua through dialogue. It is also important to note that Te Pou Tupua as Te Awa Tupua's human face is the river's representative, not guardian, and kaitiakitanga still lies with specific, related local hapū and whanau to maintain the mauri of the river. Instead of focusing on the rights of nature, the management of people and their responsibilities are central in Te Awa Tupua Act 2017. Significantly, the Māori have focused on protecting their right to maintain a particular relationship with the river, through RoN instruments.

4.2. Rights of Nature as a Tool

The treaty settlement, where Māori and Crown interests converged with RoN discourse, created an opportunity to codify Māori customary law (tikanga) within Aotearoa New Zealand common law. It remains to be seen whether incorporating the Māori cosmovision within the modernist cosmovision in this way will be of lasting benefit to the Māori people, but it takes steps to remedy the harm which misuse of language has caused in Aotearoa New Zealand's past. Tikanga formed the foundation and frame of reference for the law and its elaboration, and gained access to the "circuits of state and governance."[75] Incorporation of te reo Māori and Māori concepts into the Act ensured tikanga would direct future management of Te Awa Tupua, Whanganui iwi's ancestor. The emphasis on relationships and management as opposed to rights echoes the radical relationality of Māori with their territories—their kin through whakapapa. However, the Act also demonstrates how the modernist ontological status quo seeks to perpetuate itself. Yes, the agreement was innovative; nonetheless the Māori cosmovision and its ways of being were still squeezed into the Western legal framework, against the backdrop of nearly two centuries of state oppression. Māori have been forced to enter into negotiations through the ruling discourse and represent their demands in ways that are not based on Māori tikanga, or risk their efforts being delegitimized.[76] Official state "Māori-friendliness" is not necessarily a

73 Te Awa Tupua Act 2017, sec. 27 and 28, sec. 29.

74 Te Awa Tupua Act, sec. 32.

75 Charpleix, "The Whanganui River as Te Awa Tupua," 24; Youatt, "Personhood and the Rights of Nature," 50.

76 Tănăsescu, *Understanding the Rights of Nature*, 79.

confirmation of Māori tikanga and tino rangatiratanga,[77] and incorporation into the dominant legal model still subjects it to that hierarchy. Nevertheless, the Whanganui iwi succeeded in creating movement through friction, where their ontology gained authority as it engaged with the RoN activist package.

The Whanganui iwi used RoN to weave a place-specific view of nature as a socio-natural landscape into law. They translated concepts from multiple cosmovisions to operate from within the dominant system of politics. This "strategic inconsistency" necessitated by the frictions of encounter enabled a new and perhaps more effective form of RoN.[78] A form where legal personality is granted to a specific entity, together with explicit establishment of who and how the entity should be legally represented in court.[79] Even more than its legal innovation, Te Awa Tupua Act 2017 represents a ground-breaking, highly regulated political arrangement.[80] The Māori cosmovision, which regards Te Awa Tupua as an ancestor, is supplemented by legal personhood and scaffolded by the institutional form of Te Pou Tupua, thereby building continuous dialogue between diverse interests into the structure. Rights of Nature's legal personhood was "made to do something that theory did not yet know it could do" by setting aside its focus on recognizing an Earth-wide nature's ecotheological rights and instead focusing on the management of concrete socio-spatial structures that enable a relationality appropriate to Aotearoa New Zealand.[81]

5. Conclusion

Concepts are transformed in translation. When universalisms are made to "work within the compromises and collaborations of their particular situations,"[82] new meanings are gathered as they become unique political interventions. The Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 was a landmark case where the Whanganui iwi of the Māori cosmovision effectively collaborated across difference to exceed the boundaries of the Rights of Nature universalism. This made new politics possible in Aotearoa New Zealand not despite, but *because* of friction. To do this, they co-created a complex management structure that focused on the relationship with and responsibilities of people towards Te Awa Tupua, their ancestor. Pragmatic and novel use of the legal personality function of modernist law enabled

77 Charpleix, "The Whanganui River as Te Awa Tupua," 25.

78 Youatt, "Personhood and the Rights of Nature," 51.

79 Cano Pecharroman, "Rights of Nature," 7.

80 Matthias Kramm, "When a River Becomes a Person," *Journal of Human Development and Capabilities* 21, no. 4 (2020): 307–19, https://doi.org/10.1080/19452829.2020.1801610.

81 Tănăsescu, *Understanding the Rights of Nature*, 91.

82 Tsing, *Friction*, 5.

the Whanganui iwi to codify elements of the radical relationality of their cosmovision into the legal structure of the dominant cosmovision. They set aside the prior moralizing and generalizing narrative of RoN discourse that sought to expand the concept of human rights, where the ultimate aim was of man in the role of conscientious guardian of nature. Instead, they institutionalized Māori ideas of kinship and place-specificity, with humans as relational beings within a meshwork of whakapapa and reciprocity, securing political power for a being that had not existed previously in the urban-modern ontology.

As shown in this article, our planet does not consist of just one world various actors must coordinate across but rather consists of distinct cosmologies with their own ways of being and of transformation. Te Awa Tupua gaining legal personality is not a model that can be copied and pasted carelessly in any location. The Earth does not consist of just one world following a consistent set of rules. However, collaborations within difference "engage political abstractions, making them applicable to local situations," forming "new cultural and political configurations that change the arena of conflict."[83] This case indicates how the utilization of RoN, with careful consideration of the socio-natural landscape with which it is engaging, can be an agent of transition to a more pluriversal planet.

There is no single way to address the ecological crisis. Place-based specificities determine how each place discovers its own methods for overcoming challenges. At the very least, the Te Awa Tupua Act can be considered a success in that it expanded the realm of possibility for strategic instrumentalization of legal personality and RoN discourse. It is an excellent demonstration of the possibilities of "collaboration with friction at its heart."[84] On a final note, this paper hopes to inspire urban-modern readers to reexamine their cosmology and uncover their own forms of radical relationality with nature, what guardianship might look like, and where sources of value and responsibility lie.

Ko au te awa, ko te awa ko au.
I am the river, the river is me.[85]

83 Tsing, *Friction*, 245, 161.

84 Tsing, *Friction*, 246.

85 Traditional saying of the Whanganui iwi. See "Change-maker – the Whanganui River," He Tohu (exhibition), National Library of New Zealand, accessed March 28, 2026, https://natlib.govt.nz/he-tohu/learning/social-inquiry-resources/cultural-interaction/cultural-interaction-supporting-activities-and-resources/change-maker-whanganui-river.

6. Glossary[86]

hapū	subtribe, to be pregnant, section of a large kinship group and the primary political unit in traditional Māori society
iwi	tribe, bone, people descended from a common ancestor and associated with a distinct territory
kaitiaki	guardian, trustee, steward
kaitiakitanga	guardianship, trusteeship, stewardship
mana	prestige, authority, status, spiritual power, charisma
mana whenua	power from the land, authority over territory, power associated with possession and occupation of tribal land
mauri	life force, vital essence, the essential quality of a being or entity
pepeha	tribal oration given when a person is introducing themself
rangatira	chief; maintains integrity and prosperity of the people, the land, and other cultural treasures
tangata	people, person
tangata whenua	people of the land, hosts, of the placenta and of the land where the people's ancestors have lived and where their placenta are buried
te reo Māori	the Māori language
tikanga	the customary system of values and practices that have developed over time and that are deeply embedded in the social context
tino rangatiratanga	self-determination, sovereignty, autonomy, self-government
utu	retaliation, payment, reciprocity, concerned with the maintenance of balance and harmony in relationships
whakapapa	genealogy, to place in layers
whānau	family group, to be born, the primary economic unit of traditional Māori society
whenua	land, placenta

86 All definitions are taken from the Te Aka Māori Dictionary and the Te Ara Glossary, see Te Aka Māori Dictionary, accessed March 28, 2026, https://maoridictionary.co.nz/ and "Glossary," Te Ara – The Encyclopedia of New Zealand, accessed March 28, 2026, https://teara.govt.nz/en/glossary.