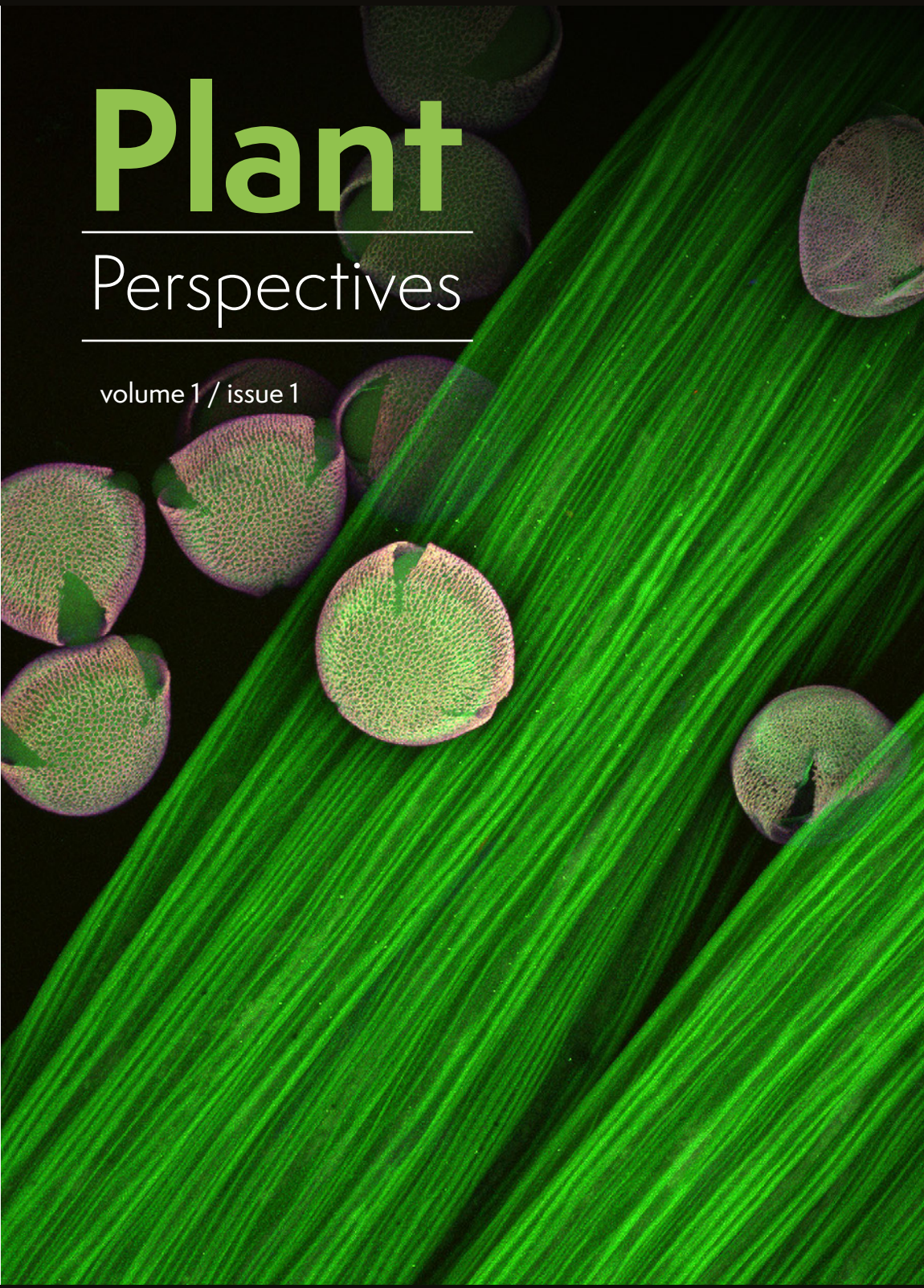
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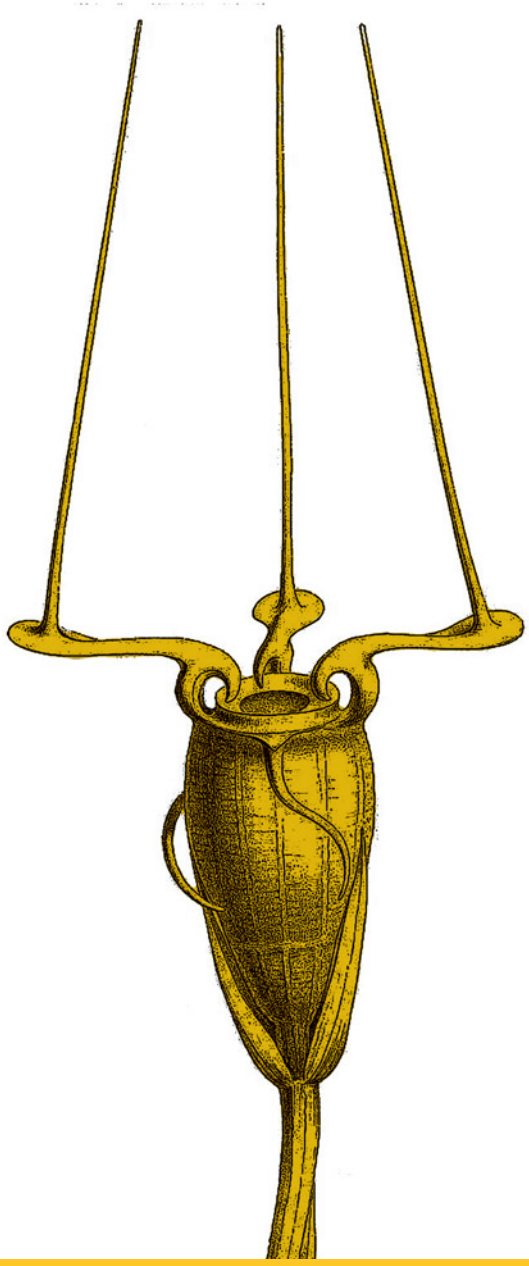
John Charles Ryan

Editorial



PLANT PERSPECTIVES 1/1 - 2024: 5–10
doi: 10.3197/whppp.63845494909704

The recent identification in Japan of a new genus and species of fairy lanterns highlights the mystery and diversity of botanical life. Known for their urn-shaped flowers, fairy lanterns are non-chlorophyllous plants that feed on fungal mycelia. Many remain buried in soil most of their lives, only to rise above-ground fleetingly with blossoms resembling glasswork (Figure 1). Fairy lanterns are especially elusive and localised. Of the hundred recorded species, 55 are limited to the sites where they were first located and, remarkably, 38 species are based on *individual plants*. The Japanese name of the new species, *mujina-no-shokudai*, evokes a burrowing badger, an allusion to the plant's underground existence. The ecological specificity of fairy lanterns renders them exceedingly vulnerable (Suetsugu et al. 2024).

Kew's latest *State of the World's Plants and Fungi* counts 350,386 species of vascular plants and 2,500,000 species of fungi globally. Many new additions to the world's flora come not from remote locations but from herbaria, botanical gardens, and research centres. The report also refers to research 'darkspots' where less is understood, from a scientific standpoint, about floristic diversity. Despite room for optimism, 45 per cent of all flowering plants face extinction. In response, the report concludes that 'an enthused and motivated populace is needed to provide a new generation of planetary stewards' (Royal Botanic Gardens, Kew, 2023, 88).

This is where plant studies is poised to contribute. As an inter-/transdisciplinary intervention, plant studies aims to cast light on biases towards botanical nature as an insentient, immobile backdrop. As this inaugural issue of *Plant Perspectives* illustrates, the field of plant studies reflects the vegetal turn in the arts, humanities and social sciences. At the same time, plant studies draws from well-established areas such as ethnobotany. Of note, as well, is research on flora in art, cultural studies, design, geography, history, literature, performance, philosophy, and sociology. Cross-cutting these domains, plant studies innovates textual,

FIGURE 1.

Marianne North's painting of *Thismia neptunis* (1869), a relative of the new species recently identified in Japan.
Source: Wikimedia Commons (Public Domain)

historical, archival, digital, ethnographic, multispecies, and collaborative approaches to investigating plant cultures – or *phytocultures*.

This first issue of *Plant Perspectives* highlights in particular the importance of archival, ethnographic and textual methods within plant studies. Alongside seven scholarly articles, a small but mighty suite of narrative non-fiction, short fiction and poetry illuminates the potential of creative, imaginative and non-academic perspectives. The issue features a cosmopolitan group of vegetal subjects from Australia, India, Mexico and the United Kingdom – breadfruit, bulkuru sedge, Montezuma cypress and yam daisy among them. Contributors emphasise Indigenous people's relationships to plants while critiquing colonial and neocolonial impacts on human-flora relations.

The issue opens with Russell Fielding's thought-provoking 'Voltaire's Breadfruit'. Fielding develops a well-structured historical analysis of global plant mobilities, or what he calls 'colonial botanical transfer'. In the late-eighteenth century, the British Government introduced breadfruit trees (*Artocarpus altilis*) to the Caribbean from the Pacific. Through a close reading of philosophical and literary materials, Fielding argues for the broader recognition of French thinker Voltaire's contribution to the radical idea of transplanting breadfruit to a distant region of the world.

An ethnographic approach informs Max D. López Toledano's narratively crafted 'Ahuehuete, Water Elder'. A major tourist attraction and source of revenue for locals, the 1,500–2,000-year-old Árbol del Tule or Tule Tree (a Montezuma cypress, *Taxodium mucronatum*) is known for its exceptional trunk circumference. Drought in the Mexican state of Oaxaca, however, has forced the town of Santa María del Tule to choose between providing water to the tree or human residents. Calling attention to ideas of venerability, heritage, temporality, and memory in long-lived trees, the article also foregrounds arboreal vulnerabilities in an era of climate disruption.

Invoking the idea of *plantiness* as the constellation of qualities that makes a plant *a plant*, Subarna De examines the shifting dynamics between people and flora in the Kodagu district of Karnataka, India. Sarita Mandanna's *Tiger Hills* and Kavery Nambisan's *The Scent of Pepper* present bioregional perspectives on the imperiled native plants of Kodagu, the largest producer of coffee and pepper in India. Closely linked to a species known as *rajakirita,* the ritual of Kailpodh inspires the Kodava community to reinhabit their land and recuperate human-flora traditions.

Similarly attentive to Indigenous people's botanical wisdom, Rod Giblett's article investigates the concept and practice of paludiculture, the cultivation of wetland plants, among Aboriginal Australians. Giblett's analysis elucidates the value of a species-level approach to plant studies drawing from historical and contemporary wetland narratives. Front and centre in the article are yam daisy (*Microseris* spp.) and the bulkuru sedge (*Eleocharis dulcis*), two wetland species cultivated by Aboriginal people through regenerative paludicultural principles and practices.

From paludiculture to companion planting, plant studies offers a framework for conceptual innovation. Based on the horticultural idea of companion planting – the purposive siting of different species close to one other – Astrid Møller-Olsen develops *companion reading* as a phytocritical approach. Cross-cultivating Chinese, Danish and English texts, the article elicits the manifold possibilities of translation as unruly, multispecies and multilingual. Møller-Olsen addresses a recurring question in plant studies: what does translation between human and plant languages entail?

A literary emphasis continues with Irene Bordignon's contribution on the botanical elements of Norwegian writer Siri Pettersen's fantasy epic *Odin's Child*. Bordignon's article connects to studies of plants in literature for children and young adults, or LCYA (Duckworth, and Guanio-Uluru 2022). This burgeoning area of plant studies stresses the pedagogical value of LCYA in fostering empathy for flora among young readers and countering 'plant awareness disparity' (Parsley, Daigle and Sabel, 2022).

Clare Hickman and Sarah L. Bell's 'Unlocking Landscapes through Westonbirt's Archive' exemplifies the value of archival methods in plant studies. Focusing on forester diaries and other materials held at Westonbirt, the National Arboretum, UK, Hickman and Bell apply a sensory framework to understanding designed landscapes and human-plant entwinements. As the article makes clear, physical and digital archives will continue to transform plant studies as the field evolves (Driver, Cornish and Nesbitt, 2022).

Our creative submissions include narrative fiction on kelp by Melody Jue and colleagues, and on the forests of India by Nina Bhatt, and poems on the cultural complexities of flora by Esthela Calderón, Anne Elvey, Noelle King, Peter Larkin and Glen Phillips. The issue concludes with two book reviews.

I am excited to announce our Call for Creative Submissions Editor. The role will involve managing diverse creative submissions—poetry, narrative non-fiction, fiction, visual art, sound art, and reflections on creative practice. Applicants should feel comfortable with multiple creative genres. To apply, please send a one-page letter of interest and short CV by 1 May 2024 to John Ryan and Isis Brook.

With the release of this inaugural issue, I invite you and your colleagues to consider *Plant Perspectives* as an outlet for your work. We accept submissions throughout the year on a rolling basis. Accepted work will be published Online First and then allocated to an issue when one becomes available. Online First articles represent the fully citeable version of record. We also invite proposals for Special Issues. *Plant Perspectives* is a Subscribe to Open (S2O) journal. Please encourage your libraries to support this new and ambitious endeavour.

Sincere thanks to Deputy Editor Dr Isis Brook, Reviews Editors Dr Benjamin Cooke and Dr Subarna De, Associate Editors, and Editorial Board Members for managing submissions and ensuring all work underwent peer-review. This issue would not have been possible without our external reviewers whose expertise has ensured the highest quality content.

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Russell Fielding

Voltaire's Breadfruit: Thoughts on the Inspiration for an Eighteenth-Century Colonial Botanical Transfer

PLANT PERSPECTIVES 1/1 - 2024: 11–40
doi: 10.3197/whppp.63845494909705.

ABSTRACT

The British Government-facilitated introduction of breadfruit trees (*Artocarpus altilis*) from the Pacific to the Caribbean during the late eighteenth century was a notable feat of economic botany, but the identities of the earliest originators of the idea remain unclear. Previous historical scholarship has focused mainly upon the role of Joseph Banks as the prime mover behind the scheme, while more investigative scholarship has identified one of Banks's correspondents, Valentine Morris, as having made an early suggestion of the idea in writing. This focus on Banks and Morris, however, may have overlooked or understudied even earlier origins of the idea. After discussing several key individuals involved in the inception of the breadfruit project, this article then considers a series of passages on breadfruit in the writings of Voltaire and presents a hypothetical pathway by which those involved in the actual transfer of breadfruit from the Pacific to the Caribbean, including Banks via Morris, may have been influenced by the French philosopher.

KEYWORDS

breadfruit, Caribbean, economic botany, Joseph Banks, Voltaire

INTRODUCTION: AN IDEA WHOSE TIME HAD COME

Breadfruit (*Artocarpus altilis*) is a tree crop found throughout tropical Oceania, owing to its dispersal by Lapita voyagers centuries before European contact (Kirch 1997). Domesticated from wild ancestral species native to Southeast Asia, breadfruit trees grow fast and abundantly produce large, starchy fruits that can be prepared for consumption in myriad ways or preserved through fermentation for times of need (Williams et al. 2017). Breadfruit is nutritious, providing adequate quantities of carbohydrates, protein and several vitamins (Meilleur et al. 2004; Liu et al. 2015).

Early European descriptions referred to breadfruit in the Pacific as 'the Staff-of-life to these islanders' and 'their chiefest sustenance' (Parkinson 1773: 45; Banks 1896: 135). The plant's English name was bestowed in Guam by the pirate/explorer William Dampier, who likened the fruit's size, taste, texture and staple role in the CHamoru diet

to that of 'a Penny Loaf' in his own country (1697: 341).[1] Joseph Banks, the wealthy and well-connected amateur gentleman of science who took on the role of naturalist aboard the first voyage of the *Endeavour*, hypothesised upon first encountering the tree in Tahiti, that breadfruit's ease of cultivation might have spiritual significance, evincing the exemption of the Tahitian people from the Biblical curse that doomed humans to 'earn their bread with the sweat of their brow' (1896: 134–35).

Soon after these and other descriptions began to circulate, the British Empire was gripped by what historian David Mackay has called 'a collective national madness', with the goal of transplanting breadfruit from the Pacific to Britain's Caribbean colonies (1974: 61). This 'madness' produced the voyage of the *Bounty*, which would end in mutiny, and the follow-up voyage of the *Providence*, accompanied by the aptly named *Assistant*, which would, in 1793, successfully deliver breadfruit trees to St Vincent and Jamaica, whence they would soon be dispersed to nearly every British sugar island in the Caribbean (Newell 2010).

Literary scholar Elizabeth DeLoughrey has urged caution and nuance when reading 'that breadfruit was desired [by Caribbean planters] because it had received glowing reports from Pacific voyagers' (2007: 29). These reports include those of Dampier, who noted breadfruit's 'sweet and pleasant taste', Captain James Cook, who referred to its flavour as 'sweet and insipid', and circumnavigator George Anson, who likened the taste of roasted breadfruit to that of 'an artichoke's bottom' (DeLoughrey 2007: 29). But of course, as DeLoughrey makes clear, flavour was never the priority in the minds of Caribbean planters. Their appeal for breadfruit to be brought to the Caribbean had nothing to do with the distinctiveness of its taste and everything to do with its effortless and abundant productivity. The planters were seeking not a delicacy for their own table but a fuel for their enslaved workforce.

DeLoughrey has noted that 'planters insisted that the breadfruit would be a vital complement to the slave diet and had no intention of eating it themselves', citing one Jamaican planter who hoped it would serve as a 'wholesome and pleasant food to our negroes' (2007: 29). Indeed, an influential 1775 pamphlet authored by naturalist John Ellis

1 The spelling and capitalisation of the term *CHamoru* here is in keeping with the new standard established by the Commission on CHamoru Language and the Teaching of the History and Culture of the Indigenous People of Guam.

called breadfruit 'the most useful of all the Fruits in the East Indies', in contrast to mangosteen (*Garcinia mangostana*), which Ellis named 'one of the most delicious'. The planters' desire for breadfruit was economic – not gastronomic – and was indeed encouraged by their reading of 'glowing reports from Pacific voyagers', mainly the reports of breadfruit's productivity, not of its flavour (DeLoughrey 2007: 29).

The phrase, 'an idea whose time has come', often attributed to Victor Hugo (though another French writer, Gustave Aimard, is likely more deserving of the credit), poignantly captures the inception, simultaneously and from a non-point source, of a seemingly irresistible next-step in human history.[2] During the late eighteenth century, percolating upward from among the many so-called improvements that European governments were then engineering in their claimed colonies, the transfer of breadfruit from the Pacific to the Caribbean may have been one such seemingly irresistible idea whose time had come. Perhaps it is this sense of inevitability that has for so long confounded historians' efforts to trace the idea to its first originator.

TRAVELLERS' TALES AND THE SATISFACTION OF STARVING

The eighteenth century was a time in which travel and adventure seemed to be on every English reader's mind. Literary historian Paul Fussell has written that the travel book was then 'one of the primary genres' and that 'almost every writer of consequence worked in the form' (1962: 350). In addition to the straightforward, nonfiction accounts of actual travels, themes of exploration and discovery permeated other genres as well: fiction like Swift's *Gulliver's Travels* (1726) and poetry like Wordsworth's 'Descriptive Sketches' (1793).

2 Hugo wrote, in *Histoire d'un Crime* (1887: 300), 'On résiste à l'invasion des armées; on ne résiste pas à l'invasion des idées', which can be translated, as it was by Smith, in *History of a Crime* (1888: 237), 'An invasion of armies can be resisted, but there is no resistance to an invasion of ideas.' Aimard, however, was much closer to the exact phrase in circulation today when he wrote in *Les Francs Tiereurs* (1861: 68), '… il y a quelque chose de plus puissant que la force brutale des baïonettes: c'est l'idée dont le temps est venu et l'hueure est sonnée', which was translated by Wraxall in *The Freebooters* (Aimard 1861: 52), as '…there is something more powerful than the brute force of bayonets: it is the idea whose time has come and hour struck.'

Considering the overt travel narratives as well as the fiction and poetry that 'tended to ape the travel book', Fussell (1962: 350) suggested that,

> the eighteenth-century literature we know would hardly be recognizable if we subtracted from it all its prevailing images of a rational and sturdy observer wandering about foreign parts, collecting data, patronizing the natives … and reporting his findings for the benefit of stay-at-homes.

Some of Fussell's 'stay-at-homes' would have been eighteenth-century Caribbean planters. For example, Joseph Robley of Tobago wrote how he had 'read all the late voyages to the South-Sea Islands', and took particular interest in the descriptions of breadfruit and other food crops growing there (1802: 362–63). Men such as Robley may have read the accounts of their contemporary travellers as a diversion from the pressures of plantation life, but they would have taken note of anything practical to be gained from their reading. Planters' concerns were economic and political: prices on the sugar market and at the 'slave auction'; Parliamentary debates an ocean away; and the day-to-day managerial decisions required to run a plantation reliant upon forced labour. Among these quotidian concerns was the feeding of the enslaved workforce.

As island plantations expanded and sugarcane swallowed nearly all the land with agricultural potential, encroaching upon the provisioning grounds from which enslaved labourers fed themselves, planters began increasingly to rely upon imported food to augment what they grew for their families and the families they had enslaved. For example, one late seventeenth-century government official wrote that there was 'not a foot of land in Barbadoes that is not employed [in the production of sugarcane] even to the very seaside' (Schlebecker 1987: 26). At this point, it simply did not make economic sense to grow food on small island land that could be placed under sugar. Even planters on larger islands like Jamaica found it difficult to provide sufficient food for the local population, both free and enslaved. Planters increased their food imports, bringing familiar comfort foods from Britain and staples from the mid-Atlantic coastline of the North American mainland. The British Caribbean imported grains in such abundance that Delaware, New York, New Jersey and Pennsylvania came to be known collectively as the 'bread colonies' (Schlebecker 1987: 26).

In time, this reliance became unsustainable. As early as 1708, Samuel Vetch, the first British governor of Nova Scotia, wrote that no English island in the Caribbean was,

> capable of subsisting without the assistance of the [North American] Continent, for to them we transport their bread, drink and all the necessaryes of humane life … in so much that their being, much more their well being, depends almost entirely upon the Continent (Andrews 1938: 347).

Historical evidence supports Vetch's claim. In 1930, historian Agnes Whitson painstakingly compiled newspaper records from four major North American port cities in the fifteen years leading up to the American Revolution. Of the 225 ships recorded as arriving to or departing from Whitson's ports, 43 per cent – 96 ships – were trading directly with the English islands of the Caribbean.

Throughout the eighteenth century, Caribbean planters' reliance upon North American commodities deepened further. By outsourcing their food production, sugar planters were able to dedicate increasingly more land to their cash crop, growing richer by the acre. In response to the emergence of an independence movement in thirteen of England's American colonies, the British government imposed restrictive trade controls, severely limiting commerce between the North American mainland and its Caribbean island holdings and further dividing the empire along the lines of loyalty and rebellion (O'Shaughnessy 2015). This was intended 'to restrain colonial self-government', but had the unintended effect of creating food shortages – or at least the perception of food shortages – among the sugar plantations of the Caribbean (Braun 2019: 652). Planters, in response, appealed to the British government to remove the embargo on North American goods. One planter on St Vincent wrote that, 'if the importation is not allowed we must inevitably Perish or bring in Provision without Permission' (Newell 2010: 147).

Perhaps reflecting upon his formative years spent on Nevis and St. Croix, American statesman Alexander Hamilton was able to grasp how much leverage the soon-to-be independent American states held over the British Caribbean, and, by extension, Britain itself. British trade controls would be met with American export embargos. Anticipating the repercussions of the Continental Congress's decision that, as of September 1775, 'the exportation of all merchandize and every commodity whatsoever to Great Britain, Ireland, and the West Indies ought

to cease', Hamilton wrote that 'the West-Indians might have the satisfaction of starving' (Sheridan 1976: 616–17). He contextualised, based doubtlessly upon his own Caribbean experience, that,

> the lands in the West-Indies are extremely valuable, because they produce the Sugar Cane, which is a very lucrative plant; but they are small, in quantity, and therefore, their proprietors appropriate only small portions, to the purpose of raising food. They are very populous, and therefore, the food raised among themselves, goes but little way. They could not afford sufficient sustenance to their inhabitants, unless they were chiefly or entirely applied to the production of necessaries; because they are so small in quantity, and so thickly inhabited (Sheridan 1976: 617).

The prospect of starving being anything but satisfactory to the West Indian planters, they began to work to avoid this outcome. As American independence and its attendant embargos loomed, some of the more well-read Caribbean planters may have thought back to the travel literature that had diverted their thoughts during easier times.

TO BELIEVE IN THE BREADFRUIT

In the eighteenth-century Caribbean, hard work was the order of the day and an entire cruel system of slavery had been instituted to enforce and maintain this order. By contrast, the accounts of voyages to the Pacific presented a wholly different way of island life. Environmental historian Jennifer Newell (2010) has identified one book, John Hawkesworth's 1773 *Account of the Voyages Undertaken for Making Discoveries in the Southern Hemisphere*, as one of the more popular and widely read tales of South Seas exploration. Hawkesworth himself was no explorer, but he compiled and edited the journals of four recent British expeditions into one bestselling book. Among these was Cook's 1768–1771 *Endeavour* voyage which, owing to the accompaniment of Banks, naturalists Daniel Solander and Herman Spöring, and the young artist Sydney Parkinson, produced some of the most glowing, scientifically valuable descriptions and lovely depictions of the region's flora, fauna and human societies yet read or seen (Fielding 2022).

Hawkesworth's three-volume *Account of the Voyages* mentions breadfruit dozens of times but the most thorough description comes from Volume 2, during the account of the *Endeavour* voyage under Cook.

Here, after a description of the tree itself ('about the size of a middling oak… leaves… like those of the fig-tree') attention is turned to the fruit and its quality as a food (Hawkesworth 1773: 80). According to Cook, via Hawkesworth, a breadfruit is,

> about the size and shape of a child's head, and the surface is reticulated not much unlike a truffle: it is covered with a thick skin, and has a core about as big as the handle of a small knife: the eatable part lies between the skin and the core; it is as white as snow, and somewhat of the consistence of new bread: it must be roasted before it is eaten, being first divided into three or four parts: its taste is insipid, with a slight sweetness somewhat resembling that of the crumb of wheaten-bread mixed with a Jerusalem artichoke (1773: 80–81).

In the 1773 edition of Hawkesworth's *Account of the Voyages*, this description is interrupted by a page break, within which are two plates: one showing a view of Matavai Bay in Tahiti, and the other, a botanical illustration of a breadfruit branch with leaves, flowers and three large breadfruits.

Later in the same volume, Hawkesworth includes a section attributed to Banks, which has become famous within breadfruit literature. In describing the livelihoods of the Tahitian people, it reads,

> Of the many vegetables serving them for food, the principal is the bread-fruit, to procure which costs them no trouble or labour but climbing a tree: the tree which produces it, does not indeed shoot up spontaneously; but if a man plants ten of them in his lifetime, which he may do in about an hour, he will as completely fulfil his duty to his own and future generations, as the native of our less temperate climate can do by ploughing in the cold of winter, and reaping in the summer's heat, as often as these seasons return (1773: 197).

These and other contemporary descriptions contributed to breadfruit's reputation among Caribbean planters who would have been interested in just such a niche commodity: not a rich, flavourful fruit but a bland, reliable, abundant and nearly labour-free source of energy for the workers they had enslaved. Historians Emma Spary and Paul White referred to breadfruit, in the context of its eighteenth-century reputation among Europeans, as 'a superior staple' (2004: 75). Some may have concluded that breadfruit, if brought to the Caribbean, could relieve their sense of food insecurity and make their plantations more like those idyllic Pacific islands of their reading and their dreams. They were, in the words of one of Banks's biographers, 'eager to believe in the breadfruit' (O'Brian 1993: 232).

Of course, this was asking too much of a single plant. Pacific historian Greg Dening laid out what he called 'the basic paradox' that the breadfruit tree, 'the very symbol of a free and unencumbered life, from the island of freedom, Tahiti', would be brought 'to the islands of bondage, the West Indies and their slave plantations' (1992: 11). Whether motivated by a desire to recreate the Tahiti of their imaginations – Bougainville's 'nouvelle Cythère' – or the more prosaic need for a reliable local food supply, late eighteenth-century sugar planters dearly wanted breadfruit to grow in the Caribbean (Commerson 1769: 197).

Eventually success came, but at the cost of more than thirty months at sea – not including the time Bligh and his loyalists spent adrift in a lifeboat following the *Bounty* mutiny – and uncounted lives lost.[3] A modern Jamaican author, Michael Morrissey, has advised that, 'when we in the Caribbean are next enjoying the scent of roasting breadfruit, we must remember the many who lost lives and their loved ones to the breadfruit project of the late 18th century' (Morrissey 2021: 29).

MAJOR PLAYERS

Why such effort, expense and loss for breadfruit? Travellers' tales described so many plants of Asia and Oceania that were new to Europeans, many of which were eventually brought to the Caribbean, but with far less public appeal or government-backed effort. Why was such attention given to breadfruit? Even if this was, as I have suggested, an idea whose time had come, it can be illuminating to trace the idea back to whomever first put it into words. Several potential originators have been suggested in the subject's broad literature. Here I shall briefly discuss some of the more frequently named major players in the breadfruit transfer operation and then present a more extensive discussion of some overlooked passages in the writings of Voltaire which may have inspired those who later proposed, and then carried out, the idea.

Banks

In tracing the history of the idea of transplanting breadfruit to the Caribbean, many scholars have justifiably focused their attention on

3 Published accounts of the 'breadfruit voyages' abound. Here, I have relied mainly upon three sources: Bligh 1790, Oliver 1988 and Newell 2010.

Joseph Banks. Mackay stated that 'it may well have been Banks who suggested to the West Indians the idea of transplanting breadfruit' (1974, 63). Similarly, historian Rebecca Earle wrote that 'the conviction that the West Indies needed breadfruit seems to have originated with Joseph Banks' (2017: 176).

Banks first encountered breadfruit in Tahiti while traveling aboard Cook's *Endeavour*. One of his biographers, Toby Musgrave, wrote – probably with pun-intended – that 'the *Endeavour* voyage sowed the seed in [Banks's] mind of the potential economic rewards to be reaped from the acquisition and transfer of commodity plants to existing British colonies' (2020: 138). Historian John Gascoigne credited Banks with having 'largely initiated' the *Bounty* voyage, but also credits Thomas Falconer – a relative of Banks by marriage – with having 'considerable foresight in recommending that Banks pay particular attention to the breadfruit tree while in the South Seas' (2003: 91).

Later in life, long after his voyaging days had ended, Banks oversaw the British system of what environmental historian Richard Grove has called 'green imperialism', built upon networks of linked botanical gardens spread throughout the tropics (1995: 339). Grove described a worldwide operation, beginning about 1770, by which more than a hundred collectors would range throughout the tropical locales of the British Empire, providing rare and unknown (to the British) plants for about fifteen gardens established mainly in South Asia and the Caribbean. From Kew Gardens, Banks oversaw the entire operation. When new specimens were 'discovered', they would be transplanted elsewhere as part of what Musgrave referred to as reciprocation 'in floral kind', first to Kew where most were unlikely to grow outside of greenhouses but could be rigorously examined and formally described, and then among Britain's tropical colonies (2020: 190). Grove described 'the main tropical axis' for these inter-garden transfers as 'running between Calcutta and St. Vincent and having a central and essential transit point at St. Helena' (1995: 339). Indeed, when breadfruit was finally, successfully, brought from the Pacific to the Caribbean, its first stop was remote St Helena in the Atlantic, where twelve young trees were delivered before the rest were carried across to St Vincent and then Jamaica (Oliver 1988).

While Banks's role in overseeing the breadfruit transfer project is well-established, owing to his roles as both the President of the Royal Society and scientific director at Kew Gardens, few historians have

committed to assigning the origin of the idea to Banks himself and none, of which I am aware, has brought forward evidence of Banks's priority. Historian Jordan Goodman summarised his role well:

> Banks, as one of the few people in England who knew anything about this plant, and who had actually been to Tahiti, was the perfect person to advise on the project, even though he did not initiate it (2020: 123).

With due credit, then, given to Banks, let us consider other major players in the breadfruit transfer who might be said to have initiated the project.

Fothergill

Colin Leakey – a botanist from the famous family of paleoanthropologists – together with crop scientist Laura Roberts-Nkrumah wrote that John Fothergill, a British physician and plant collector, 'is credited with the initial proposals to introduce breadfruit to the West Indies' (2016: 34). Gascoigne credited Fothergill only with having '*helped* to initiate' such proposals (2003: 78, emphasis added). Banks himself had written of Fothergill's influence on the project, albeit in the subjunctive:

> He liberally proposed rewards to those, whose circumstances and situations in life gave them opportunities of bringing hither plants which might be ornamental, and probably useful to this country, or her colonies… If the troubles of war had permitted, we should have … introduced by his means … the Breadfruit, Mangosteen, &c. into the West Indies (quoted in Letsom 1809: 124).

Fothergill was closely involved with British maritime efforts in the South Pacific, having supplied the *Endeavour* with casks of citrus juice to ward off scurvy and having served as a mediator in the dispute over the posthumous publishing of Sydney Parkinson's journal, which would be later recognised as containing the first scientific description of the breadfruit (Fosberg 1941; Carr 1983; Musgrave 2020; Fielding 2022). I am aware, however, of no documentary evidence that Fothergill's efforts to transplant breadfruit to the Caribbean – 'the troubles of war' notwithstanding – predated any of the other proposals.

Pitt

Historian Richard Drayton has concluded, from his reading of an 1815 letter written by Banks, that Prime Minister William Pitt personally planned the breadfruit-importation project and this conclusion

has been interpreted by other historians to indicate that the idea itself had originated with Pitt (2000: 114).[4] Analysis of Banks's actual words, however, indicates far less. The letter, written to Sir John Barrow, then Second Secretary to the Admiralty, advised Barrow not to spare too many expenses when outfitting ships, and used Bank's experience with the *Bounty* expedition as an example. Banks wrote,

> I was, many years ago, employed by William Pitt to arrange for him a Plan for bringing the Bread Fruit from the South Sea Islands to our Western dependencies, but was strictly required to use every feasible degree of economy. I proposed a Lieut. Commander, a Master's Mate, as his Lieut. &, &, & this niggardly arrangement produced the Mutiny of the Bounty, which began by turning the Commander adrift, & ended in the Peopling of Pitcairn's Island, a less economical outfit succeeded; & the business was happily effected (Banks 1815: np).

It is clear from the text itself that Banks ascribed to Pitt the role of patron – if a stingy one – for the expedition but stopped short of crediting Pitt with having originated the idea.

East

In July 1784, Hinton East, a Jamaican planter, wrote to Banks that, 'the acquisition of the best kind of the Breadfruit wou'd be of infinite importance to the West India Islands in affording … a wholesome and pleasant Food to our Negroes'. Further, the breadfruit, in contrast to the plantain, then among the most important provisions offered to the enslaved, 'wou'd be rais'd with infinitely less labour' (Mackay 1974: 63). While East's letter was among the more passionate appeals for the introduction of breadfruit, it was by no means the first.

Long

A decade before East's letter, in 1774, a Jamaican planter by the name of Edward Long, wrote the first published book in English that would clearly recommend that breadfruit might be introduced to the Caribbean. Goodman made this point in his discussion of Banks's involvement with the project (2020: 125). What Long actually wrote was not so much an appeal, nor even a reasoned argument, but merely a list – a catalogue – enumerating, as he called them, 'such foreign Plants as

4 On deference to Drayton's claim, see, for example, Newell 2010: 148.

might be introduced, and cultivated, in Jamaica, with great propriety' (1774: 903). The penultimate entry in this catalogue of nearly fifty species names 'Bread-fruit of the South Sea' and notes that the species grew in the 'East Indies, and George's Island', the latter being a now-defunct British colonial name for Tahiti (Long 1774: 905). Although Long's suggestion takes precedence among published appeals for the transfer of breadfruit to the Caribbean written in English, a survey of archived, unpublished personal correspondence from the time yields at least one earlier suggestion of the same idea.

Morris

The first person to write directly to Banks with the idea of bringing breadfruit to the Caribbean seems to have been Valentine Morris, a planter originally from Antigua, later to be appointed Governor of St Vincent. The author Charles Bucke called Morris 'one of Nature's worthiest sons' (1823: 321) and geographer Richard Howard noted that he was 'an ardent horticulturist' (1954: 383). Although it appears he accepted the governorship of St Vincent somewhat unwillingly, Morris, according to historian William Coxe, still 'distinguished himself with so much zeal and activity in promoting the cultivation of that island' (1801: 394). It should come as no surprise, then, that Morris would appeal to Banks for aid with the horticultural improvement of Britain's Caribbean holdings. He was after all, according to Royal Society historian Julia Bruce, an 'old Eton schoolfellow of Banks' (1993: 818).

In April 1772, Morris was in London and he wrote to Banks to ask, 'whether there was no possibility of procuring the bread tree … so as to introduce that most valuable tree into our American Islands'. If breadfruit could be brought to the Caribbean, Morris continued, he was 'certain it would be the greatest blessing to the inhabitants'. If his concern was for the *enslaved* inhabitants of their 'American Islands', however, it is worth noting that Morris, a slaveholder, might have instead considered emancipation as an even-greater blessing. Morris's biographer Ivor Waters (1964) wrote that he had become intrigued with breadfruit after reading Banks's descriptions from his *Endeavour* voyage, which were widely available as compiled by Hawkesworth (1773).

Many scholars have agreed that, among Banks's correspondents, Morris was the first to suggest the transplantation of breadfruit. For example, David Fairchild – the twentieth-century botanist himself credited

with introducing thousands of plant species into the United States – referred to Royal Society historian and secretary Henry Trueman Wood's 1913 account of breadfruit's history in the Caribbean, writing that, 'the names of Valentine Morris and Hinton East, two forceful characters of St Vincent and Jamaica who urged Sir Joseph Banks to approach the King are here given credit for "starting the ball rolling"', with regard to the breadfruit project (1946: 5, note).

Wood's original text prioritised Morris over East, stating that 'the first suggestion that the bread-fruit might be introduced into the West Indies is said to have come from Valentine Morris, the Captain-General of St. Vincent, who wrote in 1772 on the subject to Sir Joseph Banks' (1913: 95). To support his 'is said to have' qualification, Wood cited Edward Smith's 1911 biography of Banks, which, after discussing East's 1784 petition for breadfruit, remarked that 'the first suggestion of this project seems to come from Valentine Morris', and cited Morris's 1772 letter (Smith 1911: 123–24).

Goodman, in his history of Banks's botanical transfers, contrasted Banks's thoughts regarding the breadfruit – 'only … a plant food that provided the Tahitians with easy nourishment' – with Morris, who, upon learning about breadfruit, 'immediately began to envisage a new possibility for the plant' (2020, 124). Goodman also made the assumption that Morris first learned about breadfruit directly from Banks, setting a scene in which, 'it was probably shortly after Banks returned to London from his *Endeavour* voyage [in 1771] that he told Morris about the breadfruit'.

Among historians who have studied the transfer of breadfruit to the Caribbean, Julia Bruce has explored the matter of its initial suggestion most thoroughly. She reasoned that, since before Morris's 1772 letter, prominent publications arguing for plant introductions had not included breadfruit among the 'dozens of plants from all over the world for transportation specifically to the American colonies', such an idea had not yet been put to print (1993: 818). Bruce hypothesised that,

> perhaps Morris formulated this idea after talking with his old schoolfriend [Banks], fresh back from his first-hand experience of the plant in Tahiti. Although it is impossible without further evidence to accredit the idea of breadfruit translocation to Banks, he may well have inspired Morris to come up with the suggestion that it be done (1993: 818–19).

Whether Morris arrived at the idea in conversation with Banks or independently, Bruce concluded that Morris's letter is 'the first known, written suggestion that breadfruit be transported to the West Indies' (Bruce 1993: 818). This assessment seems correct, when restricted to the correspondence conveyed within the British Empire, but it might not hold true within a broadened view of all relevant writing of the time.

Voltaire

Overlooked in most historical breadfruit scholarship is a progression of increasingly focused statements regarding breadfruit in the works of the French historian and philosopher François-Marie Arouet, better known by his pen name, Voltaire. Literary scholar Juliane Braun is among the very few to cite Voltaire in a study of breadfruit, remarking that, 'in France, Voltaire idealized the plant as one that could "serve to nourish and satisfy the hunger of humankind" ("serviraient à nourrir & à désaltérer le genre humain")' (2019: 664, n.2).[5] Not included in Braun's citation was Voltaire's qualification that the potential nourishment and satisfaction offered by 'these two trees' (breadfruit and coconut) would be realized only upon the condition that 'they could multiply in other climates' – a clear suggestion of geographical transplantation, though without an explicitly defined destination, that predates Banks, Morris and the rest of the British and West Indian authors previously discussed (Voltaire 1770: 104).

These remarks about breadfruit were included as an entry titled 'Arbre à pain' ('Breadfruit', or literally, 'Tree of bread'), in the first of Voltaire's multivolume *Questions sur l'Encyclopédie par des Amateurs* – an obscure work that literary scholar James Hanrahan has called, 'a significant Enlightenment text', but one that had 'fallen between the cracks of editorial history' (2011: 157). Scholars at Oxford University's Voltaire Foundation for Enlightenment Studies have noted that *Questions* is 'Voltaire's longest work, and yet it is one of his least known'. Hanrahan marvelled at the topical variety represented within *Questions*, 'which is

5 Braun provided the translation quoted here; all other translations of excerpts from Voltaire are my own. It was from Braun's insightful inclusion of this statement – though passingly footnoted – that my own curiosity into Voltaire's possible role in inspiring the transfer of breadfruit was originally piqued.

vast and escapes easy categorization or synthesis, including as it does articles on literature, religion, law, history, philosophy, and natural sciences' (2011: 158). Indeed, the alphabetically ordered articles comprising the volume bear little relationship one to the next when read consecutively. 'Arbre à pain' is preceded by 'Ararat', which Voltaire describes as the 'Armenian mountain where the [Noachian] ark stopped' and is followed by 'Arbre a suif', an entry on the small evergreen tree known to botanists today as *Myrica cerifera*, which has several medicinal and practical uses, including the production of a wax used in candle making.

In 1769, as Voltaire began writing the first three volumes of *Questions* – which were to be published in November and December of 1770 – the *Endeavour* was anchored in New Zealand's Te Whanganui a Hei, later to be called 'Mercury Bay', where Cook and Charles Green, the expedition's astronomer, observed the transit of Mercury. Banks was onboard, field notes about breadfruit's role in the agricultural – and possibly spiritual – lives of the Tahitians in hand. Europe was yet to read Hawkesworth. Morris's letter was still more than two years off.

Voltaire had not seen breadfruit himself, but was familiar with the tree and its fruit through his own reading of the accounts of Pacific voyages, particularly Dampier's own 1697 account of his voyage around the world (see Curran 2011: 137–38) and the 1740–1744 circumnavigation led by British Admiral George Anson (Hanrahan 2015); both voyagers are named specifically in the 'Arbre à pain' entry. The inclusion of an entry on breadfruit in *Questions*, along with other topics that later readers would classify as 'natural history' may be viewed as evincing Voltaire's interest in what Spary has called 'the study of the natural economy – the cycle of processes which governed the perpetuation of nature, as the totality of organized bodies upon earth' (2000: 99). In this, Voltaire was joined in his efforts by other great *philosophes* of the Enlightenment.

Although the Caribbean region was not named directly in *Questions* (1770: 105), Voltaire mentioned the possibility of transplanting breadfruit 'as the coffee tree was' (in context, 'Si cet arbre était transplanté comme l'a été l'arbre à caffé…'). He would have known the popular history of coffee: its introduction to the Caribbean island of Martinique in 1723 by the French naval officer Gabriel de Clieu. By then, coffee was already growing in the Dutch colony of Surinam on the northern coast of South America and even in the French Caribbean colony

of Saint-Domingue (now Haiti), but de Clieu's self-aggrandising account features sufficient drama to have captured public attention from Voltaire's time to the present day (Wild 2004). Historian William Ukers called de Clieu's adventures 'the most romantic chapter in the propagation of the coffee plant' (1922: 6). The story even foreshadows the travails later associated with efforts to transplant breadfruit: larceny, piracy and the rationing of sailors' fresh water to keep the plants alive at sea. When Voltaire suggested transplanting breadfruit 'as the coffee tree was', he was likely thinking of both de Clieu's adventure and his eventual Caribbean destination.

Foreshadowing arguments later to be made by sugar planters, Voltaire predicted that breadfruit 'could largely take the place of the invention of Triptolemus', the mortal hero who, after having nursed at the breast of Demeter, the goddess of the harvest, taught agriculture to the Greeks (1770: 105).[6] After suggesting that breadfruit might be transplanted, and that its near labour-free productivity could replace agriculture, Voltaire devoted the rest of the 'Arbre à pain' entry in *Questions* to a discussion of other staple crops of the world: wheat, maize, cassava and rice.

The discussion of these crops supported Voltaire's assertion that, although wheaten bread may be the 'food to which we are accustomed' and may even be considered 'a part of our being', it 'is not the food of most of the world' (1770: 106). A whirlwind tour then commenced, with Voltaire listing large and densely populated world regions – 'all of southern Africa … the immense Indian archipelago … part of China' – which either 'ignore bread' or in which 'wheat is absolutely unknown' (1770: 106). Placed as such within a brief essay suggesting the transplantation of breadfruit 'as the coffee tree was', this denunciation of the essentiality of wheaten bread may have led an attendant reader with knowledge of the Caribbean plantation economy to question the rationale underlying the expensive and – particularly in the late eighteenth century – politically challenging process of importing provisions from the so-called bread colonies further north, all to fuel an enslaved workforce taken originally from southern Africa, where bread was said to be 'ignored' anyway.

6 On Triptolemus, see Matheson 1994.

While Voltaire did not limit breadfruit's potential replacement of agriculture to the provisioning of the enslaved, we know that he was aware of, and at times sympathetic toward, the plight of those forced to labour on Caribbean sugar plantations. Voltaire's novella *Candide* – subtitle: *l'Optimisme* – includes a character whose mutilated body testified to the corporal punishments commonly endured by the enslaved. 'This is the custom', the man says to Voltaire's protagonist, the title character Candide. 'C'est à ce prix que vous mangez du sucre en Europe.' ('This is the price at which you eat sugar in Europe') (1759: 136). In response, Candide swore that upon witnessing this abomination, he would renounce *not sugar*, but his namesake optimism.

This is not to say, as some have done, that Voltaire was unambiguously abolitionist and, to use a modern term, anti-racist. While some scholars, such as the historian David Wootton, have attributed to Voltaire the normative political philosophy that 'slavery is never legitimate' and, following this, that, 'rebellion against tyrants and slave-owners is always legitimate, and one can only wish that it was more often successful' (2022: 72), others, including philosopher Margaret Watkins have viewed Voltaire's positions on slavery and race as more 'complex', noting in particular that his views on slavery seem to have evolved over time (2017: 2).

Watkins has highlighted the work of literary scholar Andrew Curran, who 'traces the persistence of Voltaire's racism' throughout his writing (2017: 3). Voltaire was a polygenist, 'viewing people of different races as having been created separately by God', as Curran and other scholars, including historian Gianamar Giovannetti-Singh (2022: 23) have reminded readers. Literary scholar Madeleine Dobie's work has synthesised Enlightenment views on race and slavery by concluding that, exemplified by Voltaire, 'many writers found slavery to be repugnant [but] their underlying perception that Africans were in essential respects different from or inferior to Europeans fostered a climate of ambivalence' (2010: 299). Giovannetti-Singh put it simpler, citing historian Christopher Miller (2008: 76) to state, bluntly, that 'polygenism made it "easier to justify slavery"' (2022: 29). So, in Voltaire, scholars have found a philosophical champion of liberty whose racist views have given quarter to those who would defend bondage. Indeed, Wootton, an expert on the man and his work, has lamented that, 'nothing about Voltaire is straightforward' (2022: 84).

If, in 1770, Voltaire was indeed suggesting the possibility that breadfruit could be transplanted to the Caribbean, perhaps to provision the enslaved, then this is an idea that he developed over time. Thanks to Voltaire's prolific writing, we can see the concept grow chronologically throughout his body of work. First, breadfruit makes a brief appearance in his *Essai sur les Mœurs*, originally published in 1756, as one item in a list of several Southeast Asian curiosities: crocodiles in Pegu, female palace guards in Java, white elephants in Siam. As a subset of these, Voltaire catalogued what he considered to be several culinary oddities of the region including 'no wheat in Malabar', 'the use of fire … unknown' in the Marianas, and, in general, 'bread and wine are ignored in all the islands'. But, Voltaire conceded, amid the absence of wheat, fire, and the bread that together they make possible, the region did possess at least one panary commodity that Europe lacked: 'We see on one of the Philippines a tree whose fruit resembles the tastiest bread' (1756: 335).

In a subsequently-appended section to *Essai sur les Mœurs*, which would be published separately in 1768 as *Précis du siècle de Louis XV*, we can see how Voltaire's thoughts on breadfruit had progressed. He first described, on the island of Tinian in the Marianas, that 'what we found most singular, is a tree whose fruit resembles the taste of the best bread' (1768: 55).[7] Then, in the same text, Voltaire took the next tentative step by suggesting that breadfruit is 'a real treasure which, if transplanted, if possible in our climates' would soon surpass the 'conventional riches … at the ends of the earth' (1768: 222). The use of the phrase, 'in our climates', indicates that the transplantation Voltaire then had in mind involved an importation of breadfruit into Europe – this was actually accomplished by both the French and the British; breadfruit trees eventually grew, albeit in heated greenhouses, at the Jardin des Plantes and Kew Gardens.

In 1770, two years after the release of the *Précis*, *Questions* was published, including its suggestion for transplanting breadfruit 'as the coffee tree was'. If Voltaire was indeed suggesting that the breadfruit tree be transplanted to the Caribbean, his suggestion predated Morris's letter to Banks by two years and Long's published 1774 catalogue of transplantable crops by four. Thus, in terms of historical priority, we should recognise Voltaire as the first to suggest, in writing, that breadfruit be

7 A later revision of Voltaire's *Précis*, published in 1824, stated that this was a tree 'whose fruit of a pleasant taste can replace bread'.

introduced to the Caribbean. This, in 1770, was the culmination of Voltaire's increasing engagement with the subject beginning at least as early as 1756.

We should then consider whether a possible route exists by which this idea might have proceeded from Voltaire to Banks, who formed and enacted the plan to carry out the actual introduction. Certainly Morris, whom many credit with the idea's origination, might have come up with it independently of Voltaire – through reading accounts of travels in the Pacific, for example, or through personal conversations with Banks; it does indeed seem to have been 'an idea whose time had come'. Alternatively, the possibility remains that Morris may have been inspired directly by Voltaire.

A VOLTAIRE–MORRIS CONNECTION?

Born on Antigua in 1727 and descended from both wealthy landowners and pirates who sailed with Henry Morgan, Morris inherited the Welsh estate Piercefield upon his father's death in 1743 and moved there ten years later (Waters 1964). At Piercefield, Morris established his reputation as a keen developer of landscape by constructing walks, clearing views, planting trees and shrubs, and even hewing an artificial cave 'out of the solid rock without the mark of a tool to be seen' (Waters 1975: 9). When Banks visited his 'old Eton schoolfellow' at Piercefield in 1767, he wrote of being convinced that the estate was, 'the most beautiful place I ever saw' (Bruce 1993: 818; Waters 1975: 14).

The population of the surrounding county, Monmouthshire, was poor and Morris was known for his generosity and dedication to the public good. His obituary states that, 'at Piercefield the rich were entertained, the poor fed, and the naked cloathed' (Thicknesse 1789: 862). He was, perhaps, too generous, though. One historian described his charitable 'liberality', combined with his propensity for gambling, as 'having induced some pecuniary embarrassments', resulting in Morris being 'compelled to leave the lovely residence that he had formed for a government in the West Indies' in 1772 (Tymms 1834: 128). Piercefield was placed into a trust and Morris sailed first to his native Antigua, then to St Vincent to enter the colonial service. There, he was appointed Lieutenant-Governor in December 1772 and promoted to Governor

in October 1776 (Waters 1964). Despite this relocation, Morris was not deterred in his quest to improve the lives and landscapes of his surroundings.

After arriving at St Vincent, Morris spent his time 'promoting the cultivation of that beautiful island, and almost raised another Piercefield there' (Thicknesse 1789: 862). Morris's dream for cultivating St Vincent included the propagation of breadfruit, as his 1772 letter to Banks indicated. The fact that Morris would not live to see the plan come to literal fruition is but one part of his sad demise. Morris's promotion to the governorship of St Vincent came in the same year as the American Revolution, leaving him to preside over a volatile period in the colonial history of the region. He spent much of his time worrying about – and preparing for – conflict with both the French and St Vincent's own indigenous Carib population, the latter led by the powerful chief Joseph Chatoyer. Morris's fear was realised in 1779 when, facing an imminent Carib-aided French invasion, he was forced to sign a treaty, surrendering the island to France.

This peaceful relinquishment surely saved countless lives as it meant that the colonists 'continued to live more or less as before, except that they now had to pay for the upkeep of French troops and obey orders' (Waters 1964: 69). For Morris, however, it meant that the British Government and public alike would question the zeal with which he defended the island he was given to command. Morris returned to England, in debt and in doubt, after a two-year exile in Antigua, and published a defence of his actions in St Vincent (Morris 1787). He did all he could, Morris claimed, to defend the island until it became clear that defeat was imminent, and then he sought to effect a peaceful surrender on terms that were as favourable as possible to the Vincentian people.

While Morris was under investigation, the Government withheld the salary he was due as Governor, a pattern that had begun during his second year in office, and Morris spent his time in England, 'avoiding creditors and pressing his own claims against the Treasury' (Waters 1964: 72). Historian Stephanie Barczewski has clarified that, while Morris was governor of St Vincent, 'the American Revolution prevented him from collecting the duties from planters that were supposed to pay his salary, [and] he was forced to spend his own money to defend the island from the French' (2014: 21). After losing the island and returning to England, Morris was unsuccessful both at avoiding creditors

and making claims against the Treasury; being unable to pay his debts, he was sent to the King's Bench Prison in 1782. Piercefield was sold at a loss, as were the estates Morris still owned in Antigua. He was released from prison but, without a home, was forced to lodge with family or friends until his death in 1789. Morris likely would have known of the *Bounty* expedition – sent from England to Tahiti in 1787 to collect breadfruit saplings for eventual transplantation to the Caribbean. At the time of Morris's death, however, news of the mutiny had not yet reached England; Bligh, having been deposed and set adrift, was still *en route* to Batavia from his near-miraculous lifeboat voyage to Timor and the mutineers were yet to settle on Pitcairn Island (Newell 2010).

One of Morris's Monmouthshire neighbours, Philip Thicknesse, himself a writer of travellers' tales and a self-described eccentric, wrote that Morris 'had a good library' (1791: 157). There is evidence, though circumstantial, that this good library may have contained the works of Voltaire – either owned or borrowed – and, if it did, that this might have been the avenue by which Morris came up with the idea he presented to Banks in 1772. When Morris faced the forced sale of his estate, Thicknesse wrote how he himself was invited to 'come over to Piercefield, and pick out a hundred volumes, such as suited my reading' (1791: 158). Could the works of Voltaire, particularly those that first suggested the prospect of transplanting breadfruit to the Caribbean, have been included among these 'hundred volumes', of the 'good library' out of which they were selected? There is reason to believe that they may.

Morris was educated; he studied at Peterhouse College, Cambridge, could read and write well in French, and was practised in translation from French to English (Waters 1964; 1983). Morris entered Cambridge in 1745, a time at which Voltaire, like other major Continental authors, 'had not broken silence' in the English university curriculum, according to historian and clergyman Christopher Wordsworth's near-exhaustive 'account of the studies at the English universities in the eighteenth century' (Venn and Venn 1924; Wordsworth 1968: 122). While French Enlightenment authors likely would not yet have been included among those read and discussed officially at Cambridge, Morris may have read Voltaire independently, after completing his university education. This seems especially likely, considering the company Morris kept.

Thicknesse, Morris's friend and neighbour, considered Voltaire 'his favourite author', according to a biographer, referring to him as 'the

most agreeable writer, and the most intelligent Historian of this, or perhaps of any age' (Gosse 1952: 282). This was hardly a unique opinion in Britain during the latter half of the eighteenth century. Thicknesse owned, or had access to, the 36-volume Smollett edition of *The Works of M. de Voltaire*, an English translation published in 1761 (Fletcher 1934). The preface to this edition described Voltaire as having 'lived to see his fame flourishing not only in his own country, but also diffused over all the civilized kingdoms and states of Europe' (Voltaire 1761: vol.1, *iii*). This prefatory paean continued:

> But how much soever he [Voltaire] may be admired in other countries, he seems to be peculiarly adapted by nature, for the entertainment of the English people … This congenial affinity remarkably appears in that eagerness with which his works are procured, translated, and perused by the natives of Great Britain… (*iv*)

The Smollett edition of *Works* included both Voltaire's initial description of 'a tree … whose fruit perfectly resembles the finest bread' and his suggestion that this tree would be of great benefit, 'if it could be transplanted to our climates' (1761: vol.4, 174; 1761: vol.8, 51). Therefore, Thicknesse himself had access to Voltaire's suggestion that breadfruit should be transplanted and, if as the bookseller Ifan Kyrle Fletcher has written, Thicknesse 'frequently … loaned his friends copies of books he had just bought', he may have loaned these volumes to Morris (1934: 50).

But still, was Thicknesse's admiration for Voltaire shared by Morris? Thicknesse adored Voltaire and may have loaned his books to Morris, as was his custom. Or, if Morris's 'good library' had contained anything by Voltaire, it is likely that Thicknesse would have taken it when invited to do so. Ideally, we could examine both men's libraries to search for books by Voltaire. Unfortunately for our quest, however, the estates of both Morris and Thicknesse were sold, the books that remained at Piercefield dispersed, and those 'hundred volumes' that Thicknesse had chosen from Morris's collection lost somewhere in transit between Bristol and Antigua (Thicknesse 1791; Gosse 1952; Waters 1964). Perhaps future archival scholarship will reveal information that clearly links Voltaire to Morris, but for now that gap is spanned only by informed conjecture.

In the absence of definitive evidence that Morris read Voltaire and was influenced thereby to petition Banks to initiate the voyages that would bring breadfruit to the Caribbean, we can only summarise the

evidence suggesting that such a sequence may have occurred. Voltaire had written progressively more detailed passages about breadfruit from 1756 to 1770, eventually culminating in the suggestion that this 'real treasure', 'whose fruit resembles the taste of the best bread', might be transplanted to – in slightly veiled terms – the Caribbean, where it 'could largely take the place of' agriculture and would 'serve to nourish and satisfy the hunger of humankind' (Voltaire 1769: 55; 222; 1770: 105; Braun 2019: 664, note 2). Morris was educated and well-read, a Caribbean-born British Francophile with 'a good library' at a time when Voltaire's writings were eagerly 'procured, translated, and perused by the natives of Great Britain' (Thicknesse 1791: 157; Voltaire 1761: vol.1, *iv*). Among his closest friends was Thicknesse, a generous, book-loaning neighbour who called Voltaire his 'favourite author' and had a copy of the 36-volume Smollett edition of *Works* (Gosse 1952: 282).

These facts, along with Morris's interests in both horticulture and improving the lives of the poor, though blinded as he was to seeing beyond the cruel system of slavery, suggest that he was just the kind of person to take note of Voltaire's ideas on breadfruit. As Governor of St Vincent and a close friend of Banks, he was in exactly the position to petition for their implementation. Therefore, a reasonable scenario to imagine is one in which Thicknesse loaned Morris his copies of Voltaire (if Morris did not own them already) and Morris took note of the breadfruit passages, realised their applicability to the Caribbean plantation system he knew well and wrote the 1772 letter to Banks that would initiate the very transplantation that Voltaire had first suggested two years earlier. This is, of course, conjecture, but, I argue, informed and reasonable.

CONCLUSION: VOLTAIRE'S CARIBBEAN LEGACY

In 1777 the Royal Society of Arts offered a prize for the first successful introduction of breadfruit to the Caribbean. Many in the British Caribbean feared the French might have already achieved this goal. In February 1787 George Yonge, Secretary at War, wrote to Banks: 'it seems past a doubt that the … Breadfruit tree is arrived in the French West Indies … It must therefore be acknowledged the French are beforehand with us' (Drayton 2000: 114). Yonge was, however, wrong. A cargo of

Asian plants had arrived in Saint-Domingue but it included only the closely related breadnut (*Artocarpus camansi*), not the true breadfruit.[8]

In 1786, Banks brought the idea to King George. Royal attention to the subject, encouraged by perceived competition with the French, had managed to start the process. Banks was authorised to acquire and outfit the *Bounty*, to place it under the command of Bligh, and to appoint two Kew gardeners to accompany the voyage and to look after the young trees that they would acquire in Tahiti. When the sailors mutinied soon after sailing out of Matavai Bay, Banks's meticulous plans sunk like the potted saplings tossed overboard and the hopes of the English planters in the Caribbean were set adrift like Bligh and his loyalists, defeated.[9]

Bligh rallied and returned to England in March of 1790, where a court-martial fully exonerated him for the loss of the *Bounty*. Banks immediately began outfitting a second vessel, the *Providence*, to complete the *Bounty*'s mission. This time the ship would be heavily armed and accompanied by another, the *Assistant*, so that any incipient mutinous talk could be promptly quashed. Less than a year and a half after returning from his ordeal, Bligh set out again on his second breadfruit voyage. This time he met success and his 'floating forest' arrived triumphantly in Kingstown harbour, St Vincent, on 23 January 1793 (Tobin 1791–1793: 301).

Bligh received the Royal Society's medal and Banks was commended (Powell 1977). Subsequent histories have largely agreed upon Morris's role in instigating the endeavour, but Voltaire's name has been all but left out entirely. Perhaps now, when tracing the history of breadfruit's introduction to the Caribbean, we should leave room for the possibility that the French philosopher may have inspired Morris's idea that such an introduction might be made, just 'as the coffee tree was' (Voltaire 1770: 105).

8 On French efforts to introduce breadfruit to Saint-Domingue and other French colonies in the Caribbean, see ch. 3 in Spary 2000. On breadnut in the Caribbean, see Aurore et al. 2014.

9 Banks's detailed instructions for outfitting the *Bounty* are reproduced verbatim in Musgrave 2020, 218–20.

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Ahuehuete, Water Elder: Drought, Hope and 'Comunalidad' in Santa María del Tule, Oaxaca, Mexico

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ABSTRACT

Santa María del Tule, Oaxaca, Mexico faced a unique dilemma in 2022. An unprecedented drought forced the community to choose between providing water to its residents or to the Tule Tree, which makes Tule a touristic destination by virtue of being the stoutest tree in the world. Considering that over 75 per cent of the people in Tule depend on tourism for income, the drought highlighted the interdependence between Tule's human residents and the Tule tree. The drought announced the ecological precarity that Tule will be subjected to in coming years, making the future a rather uncertain horizon. Despite this, people in Santa María del Tule are willing to hope for better times. Tule residents find hope in 'comunalidad', a widespread value in the state of Oaxaca that is oriented towards autonomous governance and collective action.

KEYWORDS

drought, precarity, Capitalocene, hope, comunalidad

INTRODUCTION

Nothing could have been as telling as the gradual shift in tone when I spoke with Touristic Policeman Héctor[1] during each of my visits to Santa María del Tule. In less than two months, the confidence and security that infused his perspective slowly transformed into doubt and worry. In the municipality of Tule, all sense of normality broke down during my fieldwork, which took place between March and June 2022. Simply put, we did not know when it was going to rain. Tule was going through an unprecedented period of drought. When I first arrived, there was a community consensus: *Tule is a place of water abundance*, and the fountains and gardens that thrive in its touristic plaza put this on display. After a month, in April 2022, that abundance was no longer a certain fact: 'We are a community that has never lacked water, but we are experiencing it now, we are running out of water and the times are tough', Policeman Héctor

1 For the purpose of protecting the research participants' anonymity, where possible their names have been kept confidential and pseudonyms have been assigned accordingly.

shared with me. For him, as for the rest of Tule's population, those were times of exception. Life was 'outside normality, for there [was] still no rain'. The drought in 2022 was exceptional. The average precipitation rates in Tule have plummeted in the last years due to climate change, but 2022 signalled an entirely new era. By late May, there had been only two days of rain at a time of the year when 44 or 45 days of rain were to be expected based on historical records.[2] It became impossible to escape the reality that the times we are living in – in Tule as much as anywhere else – are, indeed, outside 'normality'.

Water scarcity is a particularly sensitive topic in Tule. For its approximately 9,000 residents, life is highly dependent on tourism, which accounts for over 75 per cent of all economic activity.[3] The Tule Tree, locally also known as Árbol de la Vida (Tree of Life) or as *Yà Gîts* in Zapotec, is the main attraction, a 1,500–2,000-year-old *ahuehuete* (or 'Montezuma Cypress', *Taxodium mucronatum*)[4] that enjoys the title of being 'the stoutest tree in the world' due to its 58-metre trunk circumference (Figure 1).[5] An estimated 500–600 people visit Tule each week to see the tree, and this number can climb to the thousands during peak tourism periods, such as the 'Guelaguetza' every July.[6] This creates a relationship of interdependence between Tule's human population and the Tule Tree. Keeping the tree alive entails keeping the community thriving and vice versa. The tree requires significant amounts of water to stay alive, which is typically not a problem during the wet season. During dry periods, however, the tree has to be manually watered for up to twelve hours each day, relying on the community's groundwater reserves. An estimated 2,000 litres of water are used daily on the tree,[7] for its age, in tandem with the progressive depletion of groundwater in

2 Weather Atlas. 2022. 'Previsión meteorológica y clima mensual Santa María deal Tule, México'. *Weather Atlas*, 14 May: https://www.weather-atlas.com/es/mexico/santa-maria-del-tule-clima#rainfall_days (accessed 2 Aug. 2023).

3 Ayuntamiento Constitucional de San Santa María del Tule, 'Plan Municipal de Desarrollo de Santa María de Tule, Valles Centrales, Oaxaca' (2011).

4 In fact, this tree species is Mexico's national tree.

5 Ursul Thiemer-Sachse, 'El Árbol de Tule. Un monumento de importancia en el ideario de la gente indígena de Oaxaca', *Anthropos* **111** (1) (2016): 99–126.

6 Oaxaca Global, 'Busca El Tule ser Pueblo Mágico', *Oaxaca Global*, 3 Jan. 2019: http://corporativonavarro.com.mx/3.1.19.html (accessed 2 Aug. 2023).

7 Thiemer-Sachse, 'El Árbol de Tule'.

FIGURE 1.
The Tule Tree and the touristic plaza built around it on a sunny day, April 2022.
Source: Photo by author.

Tule, has fed concerns almost for two decades for those who believe that the tree might dry up and die if it is not watered on a daily basis.[8]

Thus, in a growing context of drought and overall water scarcity, Tule faces a complicated dilemma. The community depends on the tree, and the tree needs water, but so do the people, and there might not always be enough water available for all. Tension is slowly growing in Santa María del Tule amidst this crossroads. Due to global climate change, marked by temperatures that are expected to keep rising as droughts become longer,[9] the break in normality that Tule experienced in 2022 is

8 Aitor Pedrueza, 'Árbol del Tule de Oaxaca, el más grande y viejo de México', *El Giroscopo Viajero*, 5 Jan. 2022:

https://elgiroscopo.es/arbol-del-tule-de-oaxaca-el-mas-grande-y-viejo-de-mexico/ (accessed 2 Aug. 2023).

9 IPCC, 'Climate Change 2022: Impacts, Adaptation, and Vulnerability (Summary For Policymakers)'. In H.O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller,

likely just a beginning. The community's response would set a precedent that might determine the ecological fate of Tule if nothing else were to change. Hence, I ask in this article: how did people in Tule respond to the drought in 2022 and what social factors influenced this? Where can hope be found? Is hope worth looking for?

I engage these questions through the lens of affect, 'an embodied intensity' 'occuring at the interface of all kinds of bodies',[10] for a couple of methodological reasons. Thinking through affect is attuned to the fact that, to the Tule community, the drought was embodied and emotional before anything else. But, more importantly, inquiring through the lens of affect, Juno Parreñas reminds us, is particularly useful 'when it comes to beings that do not speak, [for] feeling and touching are crucial forms of transspecific connection'.[11] In the case of the Tule Tree, affect is best suited to understand the community of Tule as a more-than-human interdependent network or, as Eduardo Kohn calls this, an 'ecology of selves'.[12] After all, looking at affect across transspecific relationships 'requires understanding how every body in relation to another is vulnerable to the other, and yet that mutual vulnerability entails risks and consequences that are unequally experienced'.[13] Affect allows us to notice the subtleties of the interdependent relationship between humans and the Tule Tree, attuning our eye to the multi-species ethical dilemmas that the drought triggered in 2022.

Likewise, I also engage with these questions using an anthropology 'of the future'. Understanding how people interpret the future – and how they feel about it – is key when looking at any form of social organisation in the present. This was particularly salient in the context of the 2022 drought. It brought upon a climate of uncertainty and precarity

A. Okem and B. Rama (eds), *Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2022).

10 Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham NC: Duke University Press, 2022); Juno Parreñas, 'Producing affect: Transnational volunteerism in a Malaysian orangutan rehabilitation center', *American Ethnologist* 39 (4) (2012): 673–87.

11 Parreñas, 'Producing affect'.

12 Eduardo Kohn, *How Forests Think: Toward an Anthropology beyond the Human* (Berkeley: University of California Press, 2013).

13 Parreñas, 'Producing affect'.

– 'insecurity in life: material, existential, social' – that made any notion of 'the future' in Tule unstable.[14] During my fieldwork, no-one knew when it would rain, how much water would eventually come, or when or *whether* to sow any seeds, in the case of Tule's agricultural demographic. No one is sure about how much water remains underground, nor how much longer the tree can remain alive, much less how life would look if the tree ever dies. The drought in Tule made visible a condition of ecological precarity, rendering the uncertainties of the future a rather generative affective force. In that sense, I propose thinking about affect not only at the interface of material bodies, but also in its temporal iteration as well. I suggest looking at the future as an 'affective temporality', a time with social and emotional agency that, in the case of Tule, anchored how the community responded to the toughest drought they had ever experienced.

The responses I found to the drought in Tule varied. For the tourist eye, not much changed. The display of water abundance that was put on stage near the tree remained untouched, given that the fountains and gardens in the touristic plaza remained fully operational and normality was insistently performed. For residents, however, things were different. Vulnerability to the drought was simply inevitable. There was no single unitary experience among the residents of Tule. Sadness, hope, nostalgia, fear, powerlessness, indifference and optimism were all part of the mix. A common thread, however, was an acknowledgement that our climate is changing, and our survival is at stake. This accounts for the rationing system implemented in Tule in May 2022, before it eventually rained, by the Municipal Government. This system determined on a rotational basis which households would have access to water on specific days of the week and which would not. There simply was not enough water for all, and the way Tule presented itself to tourists intentionally sought to disguise this fact. Behind the scenes of normality that were curated in Santa María del Tule during this time, climate change was taking its toll.

'Humans', in the broadest sense of the word, can no longer ignore the consequences of our effect on the environment, for we are interdependent with it, and caring for 'ourselves' cannot be understood as

14 Anne Allison, 'Ordinary refugees: Social precarity and soul in 21st century Japan', *Anthropological Quarterly* **85** (2) (2012): 345–70.

merely a human act.[15] In Tule, for example, the Oaxacan cultural and political principle of *comunalidad* (communality) is needed now more than ever, which – I argue – can and must be extended to species other than humans as well. The Tule Tree is an embodiment of this, acting as a community hub that will continue to offer hope for as long as it stands. This hope is rooted in the belief that collective action has the power to change our ecological fate. In Tule, the tree offers an avenue to explore the possibilities for life in alignment with Haraway's provocations:

> How can we think in times of urgencies without the self-indulgent and self-fulfilling myths of apocalypse, when every fiber of our being is interlaced, even complicit, in the webs of processes that must somehow be engaged and repatterned?[16]

The future of Tule is complicated, but people have hope. And, as long as there is hope, there is possibility.

METHODOLOGY AND POSITIONALITY

My fieldwork entailed ten visits to Santa María del Tule while residing in Oaxaca City over a period of four months, between February and June 2022, and two more visits in July 2023. I had ongoing conversations with twelve interlocutors, with four of whom I conducted long-form structured interviews. My interlocutors came from all walks of life, including a *tejate* vendor,[17] a tree caretaker, public servants in the municipal offices of Culture, Sports and Ecology, and even the Municipal President, Gregorio Peralta Vázquez, to name a few. During my visits to Tule, I sought to foreground relationships with the community – human and otherwise – to follow Navaro's call for 'relationality'

15 By 'we', the author generally refers to humans, though they do not presume to conflate all of humanity in a single ecological role, as discussed later in the paper. Accordingly, they acknowledge that this use of 'we' may feel especially inapplicable to those who have long sought to transform their role in ecological relations or among those who are exposed to ecological devastation beyond their control.

16 Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham & London: Duke University Press, 2016).

17 'Tejate' is a traditional drink in the state of Oaxaca. It is made using a mixture of ground corn, cacao and the 'mamey sapote' fruit.

FIGURE 2.
'Río Salado' used to be a major water source and community hub in Santa María del Tule. Today it is essentially a dumpsite, completely dry except for the wastewater that is poured into it, mostly coming from the residential neighbourhood 'El Retiro'.
Source: Photo by author.

as a central and necessary aspect of conducting ethnographic research.[18] This not only involved establishing relationships with my interlocutors, but also becoming familiar with the community's ecological landscape and allowing myself to establish more-than-human emotional connections and be *affected* by these. For example, a crucial moment of my fieldwork entailed engaging with my own sadness and mourning upon encountering the Río Salado, a river that used to be a community hub in Tule but has now become virtually a dumpsite since wastewater began being poured in it just over fifteen years ago (Figure 2).

Foregrounding relationality in this research was crucial not only because of the depth that it allowed me to reach with some of my interlocutors, like *El Policía Turístico* Héctor (Policeman Héctor), but also

18 Yael Navaro, *The Make-Believe Space: Affective Geography in a Postwar Polity* (Durham & London: Duke University Press, 2012).

because it gave me access to the community in ways that balanced the risks involved with doing research. Rural Mexico can be a dangerous place to conduct research, and miscalculating the risks can be costly. The recent disheartening news of the murder of Gabriel Trujillo – a Mexican-American UC Berkeley Ph.D. candidate – for simply 'being in the wrong place' while researching native flora in Northern Mexico serves as a reminder that navigating our fieldsites with caution can be, rather literally, a matter of life or death.[19] After all, Mexico is one of the deadliest places in the world for journalists, ecologists and researchers, and Oaxaca is no exception.[20] Thus, having the support of my interlocutors while conducting my research and being guided as I learned more about Tule was a central pillar of my methodology, and acted as a pre-emptive safety measure while conducting my fieldwork in 2022.

And yet, my positionality in this research still entailed *both* vulnerability and privilege. Beyond the vulnerability involved in doing research in rural Mexico, I also understood vulnerability through the eco-feminist premise that there is a 'common vulnerability to all living beings', especially in the Global South, that is inherent to our current times of climate change.[21] This vulnerability, however, must be understood in a graduated manner. I did not reside in Tule during the drought but in Oaxaca City instead, and my institutional protection in being affiliated with a Global North university at the time meant that my access to water was far more secure, both short and long-term. Likewise, I grew up in Mexico City, a metropolitan urban hub that benefits from extractivist relationships and

19 CBS News, 'California Ph.D. student's research trip to Mexico ends in violent death: "He was in the wrong place"'. *CBS News*, 23 June 2023: https://www.cbsnews.com/news/gabriel-trujillo-death-california-scholar-research-trip-mexico-ends-death-suv/ (accessed 2 Aug. 2023).

20 El País, 'Acoso y violencia: la realidad de hacer periodismo en México', *El País*, 14 Feb. 2023: https://elpais.com/mexico/2023-02-14/acoso-y-violencia-la-realidad-de-hacer-periodismo-en-mexico.html (accessed 2 Aug. 2023); Georgina Zerega, 'México se convierte en el país más mortífero para los ambientalistas con 54 asesinados en 2021', *El País,* 29 Sept. 2022: https://elpais.com/america-futura/2022-09-29/mexico-se-convierte-en-el-pais-mas-mortifero-para-los-ambientalistas.html (accessed 2 Aug. 2023); Arlene Pimentel, 'Oaxaca, lugar 11 nacional en agresiones contra periodistas, revela Artículo 19;, *El Universal*, 3 May 2023: https://www.eluniversal.com.mx/estados/oaxaca-lugar-11-nacional-en-agresiones-contra-periodistas-revela-articulo-19/ (accessed 11 Dec. 2023).

21 Alejandra Araiza-Díaz and Verónica Araiza-Díaz, 'Hacia una revolución del oikos: repensar la familia y abrazar los parentescos raros de Haraway', *Clivatge* 9 (2021).

'internal colonialism' within Mexico.[22] This asymmetrical power relationship between Mexico City and rural Mexico is *to a degree* responsible for the ecological precarity of our times, as it responds to the principles of cheap, exploitable, disposable and violable nature that brought us here.[23]

Having grown up under the state's protection entailed a responsibility as a researcher not to reproduce the power relations designed by the state in my interactions with my interlocutors. To that end, I sought to centre the shared vulnerability that ecological precarity presents to us all, even if to different degrees, when interacting with my interlocutors. And above all, in alignment with Andrea Ballestero's rejection of deterministic and apocalyptic projections of our water futures, I found it necessary to sustain a 'reluctance to close off the narrative' of a futurity that is a mutual entanglement, seeking for glimpses of hope and possibility instead.[24] As my interlocutors deeply believe, 'our future is *still* in our hands', but we have to act now and, most importantly, 'we have to be united'.

'THE TREE BRINGS LIFE': PERSONHOOD AND INTERDEPENDENCE IN SANTA MARÍA DEL TULE

Place, personhood, and community in Tule are understood in ways that go far beyond 'the human'. Its cultural, economic, social and ecosystemic balance is intertwined across multiple species, all of which come together at the Tule Tree, the protagonist. Venancio, an artisan in the community market, explained the extent of this: 'Without the tree, we would be a ghost town, a rural village like any other.' The tree 'puts Tule in the map' and, as all my interlocutors attested, 'it brings life to Tule'. Santa María del Tule is a site that inevitably puts an end to any of the

22 Pablo González Casanova, 'Internal colonialism and national development', *Studies in Comparative International Development* **1** (4) (1995): 27–37.

23 Andrés Barreda Marín, 'Anatomía de la decadencia de la relación capitalista entre la sociedad y la naturaleza', in A. Barreda Marín, L. Enríquez Valencia and R. Espinoza Hernández (eds), *Economía Política de la Devastación Ambiental y Conflictos Socioambientales en México*, pp. 23–143 (Ciudad de México: Itaca, 2019); Lorena Cabnal, *Feminismos diversos: feminismo comunitario* (España: ACSUR-Las Segovias, 2010); Jason W. Moore, 'Anthropocene or Capitalocene? Nature, history, and the crisis of capitalism', *Sociology Faculty Scholarship* 1 (2016).

24 Andrea Ballestero, *A Future History of Water* (Durham & London: Duke University Press, 2019).

illusions of distinction between humans and nature that are endemic to modern existence.[25] Those illusions, Anna Tsing aptly condemns, rely on 'assumptions of human constancy and autonomy to endorse the most autocratic and militaristic ideologies'.[26] It is a paradigm rooted in the Cartesian and binary logics of European enlightenment, making it historically and epistemologically colonial by default.[27] At its core, it holds as both premise and goal the separation, domination and control of humans over the so-called 'natural' environment.

While in Tule, it becomes impossible to forget that 'human nature is an interspecies relationship' in itself.[28] The history of Tule cannot be written without attention to the development of its interspecies entanglements. After all, 'if the tree lives, we live', Fernán, a tree caretaker, emphatically asserted. In Tule, notions of 'personhood' are extended to non-human beings as well, of which the tree is particularly exemplary. Its life is conferred subjectivity, agency and value just as much as – if not more than – any human member of the community. For example, every year, on the second Monday of October, there is a public holiday in Tule celebrating the tree's birthday starting early in the day and ending late at night. Likewise, in 2016, a (controversial) symbolic wedding took place between the tree and a Peruvian environmentalist, suggesting that the tree is also understood as capable of establishing kinship and intimate connection.[29] The tree is a community member like any other (Figure 3).

Yet, the forms of personhood that are conferred on the tree are not only expressed in human terms. The tree is spoken about in spiritual ways that can be understood through the lens of affect, transmitting specific embodied intensities as different bodies come to interact with it. Policeman Héctor and Caretaker Fernán, for instance, explained how the tree 'has its own energy, it is old, so if you come near it, you might

25 Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1993).

26 Anna L. Tsing, 'Unruly edges: Mushrooms as companion species. *For Donna Haraway*', *Environmental Humanities* 1 (2012): 141–54.

27 Aníbal Quijano and Michael Ennis, 'Coloniality of power, Eurocentrism, and Latin America', *Nepantla: Views from South* **1** (3) (2000): 533–80.

28 Tsing, 'Unruly edges'.

29 Vidalia Cruz, 'Se "casa" activista con el milenario árbol del Tule, en Oaxaca', *Quadratin Oaxaca*, 8 July 2016: https://oaxaca.quadratin.com.mx/Se-casa-activista-con-el-milenario-arbol-de-El-Tule-en-Oaxaca (accessed 2 Aug. 2023).

FIGURE 3.
This poster is in a playground in the Tule tree's touristic plaza. It contains the quote: *'Like a tree's branches, we grow in multiple directions, but our roots are still the same'*.
Source: Photo by author.

get sleepy', to which even the species name alludes. *Ahuehuete* is the Spanish way of writing *ahuehuetl*, which comes from Nahuatl and means 'water elder' (*huehue/*elder, *atl/*water), giving it a prominent spiritual role across most of Mesoamerica as an entity that exists in close proximity to the *Huehueteótl* deity, the (Mexica) Elder God of Fire.[30] Accordingly, Héctor emphasised that the tree has wisdom and survival skills, arguing

30 *El Humedal*, 'El ahuehuete, viejo de agua' (2022): https://elhumedal.org/articles.asp?t=El-ahuehuete-viejo-de-agua&c=82 (Accessed 11 Dec. 2023).

that because 'the tree is more than 1,000 years old, it *knows* how to survive, or else it would have died already'. The tree is an agential being in Tule of its own accord, though it is not left to fend for itself. Miguel, from the Municipal Office of Sports and Culture, reminded me of this: 'It is still a living being and it can get sick, or dry up… it is a living being and we have to care for it.'

Ultimately, the tree is conferred personhood and agency, and it is deeply embedded in the moral tissue of social life in Tule. 'It remains alive and agential, associated to contemporary forms of life yet still a reminder of society's evolution over time', given how it has witnessed Santa María del Tule develop for over 1,500 years.[31] Trees, after all, 'are an expression of their environment as much as their environment is an expression of the trees', Dalia Nassar and Margaret Barbour remind us while also pointing out that 'trees are telling, in a significant sense, their own stories'.[32] *Getting to know* the trees around us is a calling we should not turn our backs on. The Tule Tree is a focal point to understand the social, political and environmental issues that take place in Santa María del Tule, and paying attention to the stories the tree tells is necessary, for this is a central aspect of its personhood and agency.

It is worth noting that other forms of life are also conferred personhood in Tule. My interlocutors spoke about birds and their singing as meaningful 'companions', they spoke nostalgically about the fish and the frogs that used to 'give life' to the river, and they also spoke about how the community is transformed every year when the 'Azucenas de mayo' (a Mexican variant of rain lilies, *Zephyranthes chichimeca*) blossom in the neighbouring hills. In Tule, multiple life paths are meaningfully intertwined, such as those of the birds that stop at the Tule Tree on their migratory journeys. There are also unexpected residents in Tule, like the Mexican red-headed parrot (*Amazona viridigenalis*) that is endemic to northeastern Mexico, not Oaxaca, which is in the Mexican Southwest. Belonging to the Tule community is a multi-species act, one that is centred solely on the Tule Tree but which involves species of all kinds.

31 Luisa S. Sandoval Morán, 'Plan de recuperación monumental y ambiental de Santa María de El Tule, Oaxaca: propuesta de vegetación para el plan maestro'. Trabajo terminal para optar por el Diploma de Especialización en Diseño, Planificación y Conservación de Paisajes y Jardines, Universidad Autónoma Metropolitana, 2007.

32 Dalia Nassar and Margaret Barbour, 'Tree stories: The embodied history of trees and environmental ethics', *Cultural Politics* **19** (1) (2023): 128–47.

Hence, keeping the community alive and thriving requires an intricate network of ecological care, and humans are not exempt. An estimated 75 per cent of the income that enters Tule comes from the tourism the tree enables. All my interlocutors were in some way economically involved with the tree. Some examples are Doña Marta, who sells tejate in the tree's touristic plaza; Iván, a tour guide; Venancio, who sells his crafts in the artisanal market besides the tree; Juanita, who cooks in the gastronomic market; Fernán, a gardener and caretaker for the tree; Guadalupe, who is an environmental consultant; or Omar, who owns a restaurant near the tree, meaning that his clientele is first and foremost visiting tourists. The tree enables revenue to enter Tule in multiple ways, and its impact is hard to fully measure. All life in Tule depends, in some capacity, on the Tule Tree.

And, conversely, the tree depends on the human community as well. Its age, the increasingly long droughts, and the decrease in groundwater reserves mean that its capacity to sustain itself is not guaranteed. The Tule community understands the tree akin to Parreñas' notion of 'arrested autonomy'.[33] The tree is a 'subject forcibly made dependent while simultaneously regarded as potentially independent'. The tree *may* be able to survive by itself, for 'it has roots that are 30–35 meters long, they go deep, and maybe it could find water', Héctor reflected. However, the community is not willing to take the risk of not watering the tree. Keeping it alive is the community's priority. Thus, while the tree is recognised as a subject that could potentially survive on its own, it is maintained dependent on the forms of care the community provides. Interdependence is the tone of Tule's ecological and cultural ecosystem all around.

Accordingly, the different bodies of water that can – or could – be found in Tule have been historically meaningful community hubs. There are multiple bodies of water in Tule, but one stood out in the conversations I had with my interlocutors. This is the Río Salado (or 'Salt River') (Figure 2), which is a tributary of the Atoyac River. It used to be a major site for community gatherings just under twenty years ago, Héctor reminisced: 'I used to go there with my siblings to play and bathe, there used to be lots of animals and lots of people. It was nice and even tourists spent time at the river.' Today, however, the river is dead,

33 Juno Parreñas, 'Arrested autonomy: An ethnography of Orangutan Rehabilitation'. Ph.D. Thesis, Harvard University (2013).

virtually turned into a dumpsite. I did not see anyone near the river on any of my visits, except for one occasion when a Jeep vehicle used the river as a shortcut to move around. All I could find was sewage water and some abandoned car tires.

Nevertheless, while Tule's water bodies no longer host the social activity they did in the past, their place in Tule's collective memory remains meaningful, showing how the water that nourished the tree (and which is also used for crop irrigation) weaves intimate relationships between people and land. I understand this relationship through Barabas' concept of 'ethno-territoriality', which emphasises the 'balanced reciprocity' between culture and ecosystems that rural and Indigenous communities in Mexico have historically had.[34] As in other parts of Oaxaca, this has historically occurred in Tule through the sacralisation of landmarks,[35] weaving together land and cultural attachments to the divine. The fact that the Tule Tree has been considered sacred for centuries is an example of this, being a site used for ritual dance since before colonial times, as well as a place entangled with multiple regional mythologies.[36] Folk tales suggest that the Tule Tree is one of the places where traces of Quetzalcoátl (the prominent Feathered Serpent God that features in several Mesoamerican mythologies) can be found, among others tales such as the Condoy King story in Mixe mythology or even myths pertaining to Pecocha, a 'Nicaraguan prophet of Asian origin' who visited Tule to plant the tree.[37]

This is part of what made the drought in 2022 so pressing. The drought not only challenged the daily activities of everyone involved, but also threatened to dissolve the ecological balance that had for centuries been central to Tule's social fabric and identity. If the drought meant there could only be enough water for either the tree or the human residents, what would happen to the interdependence between these? And

34 Alicia Barabas, 'La construcción de etnoterritorios en las culturas indígenas de Oaxaca', *Desacatos* 14 (2004): 145–68.

35 Ibid.

36 Thiemer-Sachse, 'El Árbol de Tule'.

37 Vive Oaxaca, 'El árbol del Tule, Festividad 2012. Plática con Carlos Martínez, Historiador de Santa María del Tule' (2012): https://www.viveoaxaca.org/2012/10/el-arbol-del-tule-festividad-2012.html (Accessed 11 Dec. 2023); Juan Antonio Reyes Agüero, 'En busca del árbol nacional: El triunfo del ahuehuete en un concurso popular', *Relatos e Historias en México* **8** (153) (2021): 60.

how did Tule, a place where there has 'always been water abundance', whether it was rainy season or not, reach such a critical point? How was this water scarcity manufactured?

WATER SCARCITY IN TULE – WHAT, HOW AND WHY?

Historically, Santa María del Tule has never lacked water. Even its name comes from Nahuatl *tollin*, the name given to an aquatic plant (*Schoenoplectus acutus*, though some claim it could also refer to *Typha domingensis*) that could be widely found in the community, especially in the past when the ecosystem was (suspectedly) semiaquatic and swamp-like.[38] The community's local mythology, mostly a hybrid of Mexica and Zapotec culture,[39] is closely tied to its water abundance, and the way residents speak about the community's water resources make it clear that water is a key part of Tule's collective memory and identity.[40]

The water scarcity that the 2022 drought brought was thus a major turning point in Tule's history. The factors that led to it are many. Some are global, like climate change; some are regional, like urbanisation driven by internal migration within the state of Oaxaca; and some other factors are fully local, such as Tule's wastewater management, decisions regarding water distribution or even the widespread installation of equipment such as *cisternas*, underground water tanks. All these phenomena are environmental just as much as they are social, for the two realms are never truly distinct from one another.

38 Thiemer-Sachse, 'El Árbol de Tule'; Alejandra Montoya, 'El árbol del Tule, un testigo vivo a través de la historia', *Living la vida*. 16 December 2021: https://livinglavida.com/blogs/inspiracion/el-arbol-del-tule-un-testigo-vivo-traves-de-la-historia (accessed 12 Dec. 2023).

39 Notably, Santa María del Tule was first populated by Zapotec people but then conquered by the Mexica (Aztec) empire prior to the Spanish Conquest (hence the adoption of Nahuatl vocabulary). Upon colonisation and in Mexico's independent era, Tule has become a syncretic community that integrates multiple ethnic groups into a single social fabric. It is aligned with Mexico's national project of *mestizaje,* which promotes a mixed-raced national identity. Nonetheless, there is signage in the touristic plaza written in the Zapotec language, acknowledging the community to be a historically Zapotec site.

40 Investigación y Diálogo para la Autogestión Social A.C., 'Memorias del Agua - Santa María del Tule', *Memorias del Agua en Oaxaca* (2022): https://www.memoriasdeltule.com/

I understand the processes by which water scarcity has grown in Tule through Moore's concept of the Capitalocene.[41] In his view, most of the ecological arrangements in our world today are the consequence of the organisational principles of global capitalism. This ecological ordainment, or 'world-ecology', as he calls it, is the result of modifications to nature in service to capitalist institutions, such as ever-growing markets, class hierarchies and capital accumulation processes; and, in particular, the forms that the Capitalocene takes respond to a principle that is a central tenet in the political economy of capitalism: 'cheap nature'. What this means is that capitalist accumulation relies on cheap extraction of value from nature, either in the form of raw materials or by exploiting its labour. This can be seen in Tule in both clear and subtle ways, from the way people manage water to hidden cultural biases as well.

My use of the term 'Capitalocene' is an intentional attempt to break apart from the more established paradigm of the 'Anthropocene', which posits that 'humans are now a geological force in and of themselves, driving planetary change at an unprecedented rate'.[42] As much as there is truth in that, I follow established critiques of the concept, which argue that 'humanity' cannot be conflated and treated as a homogeneous category that is equally responsible for the ecological impact of 'humankind'. To do so would efface present and historical differences between different groups of humans, particularly between coloniser and colonised classes. It is crucial to remember that 'speaking about the collective "we" of humanity should not imply that "we" are politically one'.[43] In Tule, for instance, it would be inaccurate to say that the ecological precarity experienced today is merely the result of humans acting in pursuit of 'human interests'. Not all humans in Tule have played a part in this ecological degradation, and human interests in the community are inextricably tied to healthy ecosystemic relations as well.

What is important to understand about Tule is that the water scarcity experienced in 2022 was amplified, but not *entirely* caused by that year's strenuous drought. Since the 1990s, the municipality has gone through an urbanisation process that laid out the conditions for the

41 Moore, 'Anthropocene or Capitalocene?'.

42 Amelia Moore, 'Anthropocene anthropology: reconceptualizing contemporary global change', *Journal of the Royal Anthropological Institute* 22 (2015): 27–46.

43 Ibid.

water scarcity it eventually experienced.[44] Between 1995 and 2000, Santa María del Tule was ranked as the municipality with the highest development index in the Metropolitan Oaxaca Zones, which is measured in terms of health provision, education and, most importantly, infrastructural development.[45] 'Development' had made its way to Tule, and throughout this period caring for the ecosystem was barely an afterthought. A key moment in Tule's development was the inauguration of a super-highway in the early 1990s connecting Tule, Oaxaca City and Mexico City.[46] The highway stimulated trade and tourism, but also brought some of the biggest ecological threats Tule has faced. The highway was too close to the tree, damaging its roots and slowly drying it up. Thus, in 1992, the *Asamblea Comunitaria* (Community Assembly) decided to expand the touristic plaza and divert the highway to remedy the harm and protect the tree, which even entailed relocating some of the families that lived in the neighbouring area.[47] The tree survived those first threats, but that was just a beginning.

After that, pavement spread rapidly in Tule, transforming the local ecology in its own way. Most of Tule's municipality is paved today, especially near the Tule Tree. Pavement, however, retains more heat and decreases the amount of water that makes it into the soil, decreasing in turn the amount of water available in the community's groundwater reserves. Some residents are aware of this: 'Now all streets have pavement,

44 G.V. Campos-Angeles, J.J. Vargas-Hernández, C. Trejo-López, J. López-Upton and J. Velázquez-Mendoza, 'Variación estacional del potencial hídrico, tasa de fotosíntesis y conductancia estomática en el árbol del tule', *Terra Latinoamericana* **23** (4) (2005): 515–22; Andrés E. Miguel and Victor R. Robles González, 'Territorio y distribución del ingreso en el neoliberalismo: el caso del distrito Centro, Oaxaca', *Anuario de Espacios Urbanos Historia, Cultura, Diseño* 6 (1999): 291–301.

45 K.A. Martínez García, L.A. Martínez Sánchez, C. Martínez Olivera, A.E. Miguel Velasco and M.A. Osorio Hernández, 'El Papel de la Vivienda y las Tecnologías en el Desarrollo Sustentable de las Zonas Metropolitanas de Oaxaca, México', *III Congreso Virtual Internacional sobre Economía Social y Desarrollo Local Sostenible* (2020), pp. 106–39.

46 Miguel and Robles González, 'Territorio y distribución del ingreso en el neoliberalismo'.

47 Daniel Barrera-Fernández and Marco Hernández-Escampa, 'Community-based tourism, heritage conservation and improved urban design–Santa María del Tule, Oaxaca, Mexico', in Sandeep Kumar Walia (ed.), *The Routledge Handbook of Community Based Tourism Management: Concepts, Issues & Implications*, pp. 249–63 (London: Routledge, 2020).

and that hurts us – water runs off instead of concentrating underground. Before, our streets collected water, but we cannot count on that anymore', Miguel commented. This has also transformed people's relationship with the land, as Héctor and Fernán explained: 'This floor we are standing on used to be mud, water used to pour from the ground, and we could drink the mud as if it was chocolate. We cannot do that anymore.' The water abundance that used to be part of Tule, experienced to the degree of being able to drink water at any time directly from the ground, was left behind when the municipality paved the roads.

On top of this, perhaps the most devastating factor in Tule's ecology was the development of the residential neighborhood called El Retiro. This neighbourhood was built around the year 2000 by the Instituto de la Vivienda de Oaxaca,[48] who, according to local rumours, took the opportunity when a wealthy resident wanted to sell most of his land. This neighbourhood has been a major catalyst for people from Oaxaca City to migrate to Tule, transforming the community's cultural composition and the services required there.[49] Most residents living in El Retiro used to live in Oaxaca City, but have now looked for alternative places to live nearby (Tule is a thirty-minute drive away) given the aggressive gentrification that Oaxaca City has undergone in the last two decades. El Retiro's appeal lies in the way it offers Oaxacan residents more affordable opportunities to aspire for the normative middle-class lifestyle in Mexico, wherein aspirations of upward mobility are expressed in the possibility of being property-owners, as Laura, a resident of Oaxaca City, shared with me. Property in El Retiro, Tule, is much cheaper than in Oaxaca City, explaining the twenty per cent increase in the population of Tule since the neighbourhood was first built.[50]

48 Ayuntamiento Constitucional de San Santa María del Tule, 'Plan Municipal de Desarrollo de Santa María de Tule, Valles Centrales, Oaxaca'.

49 Ibid.

50 Laura I. Gaytán Bohórquez, Verónica González García and Isabel González García, 'Asentamientos humanos irregulares en la Zona Metropolitana de Oaxaca. La lógica de la marginación urbana. Recuperación transformadora de los territorios con equidad y sostenibilidad', in Sergio De la Vega Estrada and María del Pilar Alejandra Mora Cantellano (eds), *Estudios sobre cultura y desigualdad en las regiones Vol. 4* (Ciudad de México: Universidad Nacional Autónoma de México, Instituto de Investigaciones Económicas y Asociación Mexicana de Ciencias para el Desarrollo Regional, 2021).

The primary issue with El Retiro, however, is that for more than a decade it poured its wastewater directly into the Río Salado, transforming the river from a community hub to a polluted dumpsite. While this has stopped now, it still led to irreversible biodiversity loss, and there have even been reports that the contaminated water has reached the community's groundwater reserves.[51] This presents a health hazard amidst other challenges, all of which were present in Héctor's lament regarding the development of the neighbourhood: 'I don't know why the local authorities agreed to its development. We are now running out of water because of it, and we are now even overpopulated.'

And the drought made everything worse. As a result of global climate change, a consequence of what Barreda Marín calls 'fossil capitalism', Tule was forced to entirely reconsider how it manages its water resources.[52] Farmers, for example, had no means of predicting when it would rain, meaning that any course of action regarding their crops would be a gamble. In the past, the first harvest of the year used to be available around late March or early April. However, in 2022, only the farmers whose land was located near wells had dared to sow any seeds, meaning that local food production also saw a significant decrease. This was one of the reasons behind ongoing community disputes over agricultural land (Figure 4). As a result, corn – a quintessential ingredient in the Mexican diet – had to be imported from other parts of Oaxaca, driving up the cost of food and, consequently, of life as a whole.

Likewise, when it comes to domestic water, municipal authorities decided in early May that they would interrupt some of their public water provision services, rationing it by areas and schedules instead. While this was not the first time water rationing had been implemented in Tule, it had been a long time since it was last done, and it had never been so threatening: 'I cannot remember the last time we experienced something like this, and tougher times are still to come', Venancio reflected.

Yet, within the mechanisms of capitalism, everything was working to perfection. Water wells used to be always available for public use in Tule, and anyone could collect potable water from these. These wells are no longer accessible, now under state custodianship. Doña Marta, who

51 Ayuntamiento Constitucional de San Santa María del Tule, 'Plan Municipal de Desarrollo de Santa María de Tule, Valles Centrales, Oaxaca'.

52 Barreda Marín, 'Anatomía de la decadencia'.

FIGURE 4.
Many farmers decided not to sow any crops in the first half of 2022, aware that the drought could easily render any investment null.
Source: Photo by author.

sells tejate, explained how in the past she used to collect water from the wells to prepare her drink, but now she must purchase bottled water that is extracted, privatised and monopolised by profit-driven multinational corporations instead.[53] Water scarcity provides the perfect alibi to separate communities from their water resources, then to privatise them. Environmental destruction creates markets that are subject to financial speculation and are unlikely to favour small communities like Tule, which is especially relevant considering that water entered the

53 Sergio Velázquez Vargas and Francisco Peña, 'Concentración de agua y agroempresarios en el Bajío, México', in C. Yacoub, V. Duarte and Rutgerd Boelens (eds), *Agua y Ecología Política: El extractivismo en la agroexportación, la minería y las hidroeléctricas en Latinoamérica*, pp. 45–53 (Quito, Ecuador: Abya-Yala, Justicia Hídrica, Serie Agua y Sociedad, 2015).

Wall Street financial market as a commodity in 2021.[54] Notably, this is a subtle mechanism of the 'un-indigenisation' (*desindianización*) process that the Mexican state has promoted for most of its independent era,[55] forcing 'Indigenous' communities to change their ways of life and participate in modern capitalist modes of production to survive instead.

The markets created by water privatisation are many, and they will continue to proliferate. In Tule, for instance, they can also be found in the water trucks that are now needed to provide clean water to most households in Tule, or even in the underground water tanks (cisternas) that several residents have installed in the last few years to be better prepared for the times when water is lacking. The former illustrate the growing dependency on capitalist markets for survival, whereas the latter, despite being innocent-looking, 'claim private ownership over public water', Policeman Héctor asserted in an accusatory tone. This accusation is not without solid foundations. Private and privatised solutions to water scarcity lean on and reproduce the individualism, atomisation, manufactured scarcity, subjection of social issues to market forces and transfer of responsibility from institutions to individuals that have come to characterise the Capitalocene and its neoliberal developmental regimes.[56]

Even the way water is allocated within the tree's touristic plaza during the drought responds to such logics. Unequivocally, it is important to keep the tree healthy, which is why it is watered for up to twelve hours non-stop. But I was surprised by how, in each of my visits, large amounts of water were destined to water the grass turf placed all over the plaza. This turf was watered from early in the mornings, starting at seven in the morning until early afternoon. When I first arrived in Tule, the grass was watered non-stop, but by mid-April this was done in 45-minute intervals as gardeners had to wait for more water to become available

54 Kim Chipman, 'California water futures begin trading amid fear of scarcity', *Bloomberg*, 20 Dec. 2020: https://www.bloomberg.com/news/articles/2020-12-06/water-futures-to-start-trading-amid-growing-fears-of-scarcity#xj4y7vzkg (accessed 2 Aug. 2023).

55 Dolores Pla Brugat, 'Más desindianización que mestizaje. Una relectura de los censos generales de población', *Dimensión Antropológica* **18** (53) (2011): 69–91.

56 Gustavo Esteva, S. Babones and P. Babcicky, *The Future of Development: A Radical Manifesto* (Bristol: Policy Press, 2013); David Harvey, *A Brief History of Neoliberalism* (Oxford: Oxford University Press, 2005).

FIGURE 5.
There is plenty of grass turf in the Tule tree's touristic plaza. The drought stressed the water resources needed for its maintenance, and dry yellow patches of grass could be found all over by mid-May 2022.
Source: Photo by author.

in the water wells. The reasoning behind this was rather clear: the grass turf – a water-intensive landscape - enhances the reputation of the Tule Tree, attracting more tourism and, accordingly, more income. Allocating water to the turf *in addition to* the Tule Tree was deemed a more valuable investment than supplying water to households for domestic use, prioritising revenue from tourism over a comfortable existence in the municipality during times of crisis (Figure 5). The water scarcity that is pressing on Tule today can be understood as the consequence of decades of a developmental model based on transforming nature to serve the interests of capital accumulation. Even the ecological interdependence that is so embedded in the ways of life in Tule is now subject to this.

And yet, there *still* is water in Tule. Having water to live with remains possible, even while global climate change threatens to change that fact. Life in the community will continue to grow, though it is

likely it will happen in harsher conditions and with different ecological relationships than in the past. The groundwater reserves are still replenishing, although in a much slower way than they used to before. For the moment, it seems that the Tule Tree, almost 2,000 years old, will continue to find its way through, 'bringing life' for years to come. The tree is a bastion of the 'possibilities for life in capitalist ruins' that Anna Tsing urges us to look for, reminding us that we can write histories of environmental loss not only to mourn, but also while searching for hope.[57] Residents in Tule *do* hope, after all. Where does this hope come from?

HOPE: AFFECTIVE FUTURES AND COMUNALIDAD IN SANTA MARÍA DEL TULE

To understand how hope is produced and experienced, we must first understand how people inhabit time. Hope is inherently temporal, for it is oriented towards the future, and Berlant shows how – by virtue of being a form of affect - it 'can communicate the conditions under which a historical moment appears as a visceral moment'.[58] Time, in that sense, is affective: it is experienced subjectively in ways that respond to individual and collective orientations alike. However, as much as inhabiting time involves "'something" ... that exceeds, or goes further and beyond the human imagination that produces an affect that may be experienced by human beings, *all the same*',[59] it is also subject-specific. An individual's interaction with their environment 'depends on the bodily inhabitance of that space', Sara Ahmed points out.[60] Inhabiting a particular time produces orientations from which our value systems, desires and relationships all partake. To be oriented towards hope amidst ecological precarity, in that sense, involves a form of temporal vulnerability, wherein the future can always disappoint should things not 'become different in

57 Anna Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015).

58 Lauren Berlant, *Cruel Optimism* (Durham & London: Duke University Press, 2011).

59 Navaro, *The Make-Believe Space*.

60 Sara Ahmed, *Queer Phenomenology: Orientations, Objects, Others* (Durham & London: Duke University Press, 2006).

just the right way'.[61] Hope entails vulnerability, and optimism is often cruel. And yet, despite the overwhelming uncertainty of our ecological times, people in Tule are still willing to hope. The difference in this case is that what people in Tule hope for is not necessarily for things to change, but rather for things *to stop changing*, broadly speaking.

Their hope, of course, is not one-dimensional. People *do* worry. Doña Marta, for instance, said that she feels 'simply powerless' against climate change and its associated effects. Miguel emphasised his own worries too, saying that 'we *all* worry, the whole community worries. It affects us today, and we wonder, how will it be for our children? What about our grandchildren? If things are like this today, can you imagine the future? I am worried.' Nostalgia was also an important part of the mix, as shared by Héctor: 'I wish the old days could return, but that is impossible now, the rivers are already polluted, the only future we can hope for is more rain, more life.' Reminiscing about the river bittersweet for him, as it reminded him of how he used to visit the river is with his siblings, some of whom are no longer alive. Ecological loss in Tule is social loss as well, for the community's memory and identity are all at stake.

Turning towards this pain rather than *simply hoping* was important for many of my interlocutors, in alignment with Elizabeth Povinelli and Sophie Chao's reminders that hope does not get a free pass from critical examination. Beyond cruel, it can be a 'pharmakonic' imposition as much as it can be 'dangerously naive and ignorant, it fails to understand it is a privilege of some and a lure to catch unsuspecting others'.[62] When wielded uncritically, hope can be used to sustain our attachment to the dominant social systems we are living under, applied as a band-aid to cover up the ongoing pain that the failure of these structures has caused.

Hence, the testimonies above, going beyond hope, account for a series of contradictions I struggled making sense of throughout my fieldwork. Amidst the drought and its accompanying pain, every single day, starting at 7.00 a.m., gardeners would water the grass surrounding the tree, sometimes for as long as seven hours straight. At 10.00 a.m., three ornamental fountains were turned on in the touristic plaza,

61 Berlant, *Cruel Optimism*.

62 Elizabeth Povinelli, 'Stubborn'. *E-flux journal* (2018): https://www.e-flux.com/journal/95/228045/stubborn/ (Accessed 12 Dec. 2023); Sophie Chao, *In the Shadow of the Palms: More-than-human Becomings in West Papua* (Durham and London: Duke University Press, 2022).

putting a water show on display. And around and within the plaza, there were multiple *agua fresca* (fruit water), sorbet and tejate businesses on any given day.

At first sight, it was hard to believe that Tule lacked water – it seemed to be everywhere! The way things looked sent a seemingly clear message: 'there is water here'. And the tone of the social activity that took place within the plaza by no means suggested we were living in the times of environmental insecurity the drought had brought on. At all times of the day, kids played around while residents and tourists alike visited the plaza to walk, relax, meditate or even take a nap by the tree. Venus, a tourist from Costa Rica, expressed this sentiment: 'This is a peaceful place, it makes me want to meditate and feel calm with myself.' I also experienced this in most of my visits to Tule, and having a *tuna* (the fruit given by the *Opuntia* cactus) sorbet at noon under the shadow of the Tule tree became a routine that lasted all my research. How could the worries brought by the drought coexist with the sense of calm and 'normality', and even the performance of water abundance, found in Santa María del Tule's touristic plaza? (Figure 6).

According to my interlocutors, the touristic plaza represents the community values that have helped them and will continue to help them survive. They are aware that water fountains in times of drought may not be the best possible use of water in sheer environmental terms, but 'everyone has sacrificed something for the tree', and being able to enjoy the plaza to the fullest extent offers hope, catharsis and tranquility in times of crisis. Historically, the touristic plaza has always been developed through a cooperative model with all decisions made collectively at the Asamblea Comunitaria, which is conferred the utmost political authority in most Oaxacan municipalities. The touristic plaza has even been previously studied as a success story and model to follow in terms of community-based tourism.[63] The plaza is today a reminder that the abandonment of individual interest allows the community to respond to challenges in a united and effective manner. Policeman Héctor, for example, recounted how his family was one of the relocated households when the plaza had to be expanded in the 1990s to protect the tree from pollution coming from the highway. His family had to leave behind

63 Barrera-Fernández and Hernández-Escampa, 'Community-based tourism, heritage conservation and improved urban design'.

FIGURE 6.
Despite the drought, three water fountains remained operational in the Tule tree touristic plaza.
Source: Photo by author.

the place where they grew up, built their life and raised their children, but only in that way could the future of the tree be secured for years to come. A beautiful and thriving plaza is the legacy of their sacrifice, which now Héctor gets to honour by taking care of the tree. Water may have been rationed to individual households on a rotational basis during the drought, but the plaza has water, and it is meant to be enjoyed by everyone, locals and tourists alike.

This is an expression of a social and political ideal that is widely spread across the state of Oaxaca: *comunalidad* (communality). Comunalidad acts as a cultural cohesive element for the political system *Usos y Costumbres*, an autonomous governance structure that can be found in most Indigenous communities of Oaxaca, including Santa María del Tule.[64] Comunalidad, at its core, is a form of 'authority and power based on consensual decisions' meant to serve 'the common good'.[65] It is sustained through five main pillars: communal land, communal work (or *tequio*), communal political power, communal parties and the Asamblea Comunitaria.[66] In Tule, several of my interlocutors expressed that a sense of hope stems from it, especially as they recounted how the Asamblea Comunitaria has repeatedly acted firmly in the past to care for the natural environment. The expansion of the touristic plaza is just an example, but the list goes on. In 2012, for instance, a session of tequio summoned residents to sow ocote pines (*Pinus montezumae*), jacarandas (*Jacaranda*) and laurels (*Laurus nobilis*) in the neighbouring hills. Today, these have grown and can be found with relative ease. When anyone goes to the hills for a walk, they now realize that '*the community was here,* and there is more nature, more trees, and more life overall because of it', Héctor remarked. Similar tequio sessions have been organised recently, including a 'reforestation tequio' that took place in 2021 with the explicit aim of sowing trees 'for future generations to enjoy'. People

64 O. Allende Hernández, A.I. Zanfrillo and J. Calvo Cortés, 'Principios y valores en los usos y costumbres de la región Mixteca en el marco de la economía social para el desarrollo comunitario', in I. Castellanos Balderas, Y. Paz Calderón, C.A. Peral Cisneros and F.A. Sánchez Meza (eds), *Empresa, economía y mercado. Perspectivas multidisciplinarias*, pp. 45–63 (Ciudad de México: Bubok Publishing, 2018).

65 Jaime Martínez Luna, 'Comunalidad y Desarrollo', *CONACULTA* (2003).

66 Elena Nava Morales, 'La Comunalidad Oaxaqueña: Lucha y Pensamiento Indígena', in Pedro Canales Tapia and Sebastião Vargas (eds), *Pensamiento Indígena en Nuestramérica*, pp. 27–46 (Santiago, Chile: Ariadna Ediciones, 2018).

are sowing the future in Tule, and collective action has been at the core of this for several years already.

Comunalidad, hence, acts as a source of hope in Santa María del Tule. My interlocutors emphasised that, through communal values, 'our future remains in our hands – when we are aware of what we have to do and organize together, we can do meaningful things', Miguel claimed. Héctor made sure to list the ways that environmental awareness has been a part of the community's actions for many years. For instance, in the last decade, the Asamblea Comunitaria has installed water treatment facilities, implemented systems to separate compostable from non-compostable trash, enforced policies to protect the Tule Tree from graffiti or having its branches removed, and even routinely called for 'communal trash-collection walks'. In his words, 'we are *already* doing better', and the drought had awakened the community to the urgent actions needed to respond to climate change. Comunalidad, in its multi-species iteration, reminds us that if life is to continue, we must act together and depend on each other, human or not. The individuating mechanisms of capitalism have already brought us to such precarious times but, to survive, sacrifices may be needed. Tule teaches us that togetherness can transform loss into possibility, and hope can be a worthwhile quest.

CONCLUSION

In early June 2022, it finally rained in Tule. Water kept coming for months and, thankfully, the drought in 2023 was not as strenuous. Life returned, at least for a while, to some sense of normality, but no one knows how long this can last for. All indicators and predictions, including the extreme heat wave that struck Mexico in June 2023,[67] suggest that droughts worse than the one in 2022 are to be expected. Environmental loss is hardly reversible, and ecosystems such as the Río Salado are likely to be gone for our lifetime at the very least. We are living in delicate times of ecological precarity, and acknowledging our vulnerability in today's climate is needed more than ever if we are to hope for anything

67 Brendan O'Boyle and Daniel Becerril, 'Mexico swelters as "atypical" heat wave grips nation', *Reuters* 15 June 2023: https://www.reuters.com/world/americas/mexico-swelters-atypical-heat-wave-grips-nation-2023-06-15/ (accessed 2 Aug. 2023).

other than further loss. Santa María del Tule is just an example of the multi-species interdependent networks we are embedded in and which we can no longer neglect. To do so would be reckless, especially now that 'we get to see the realities of climate change. No one is telling us what it will be like anymore – we are seeing it, it's difficult, and *there is no end in sight*', as Policeman Héctor reflected to conclude our talk.

But we still get to hope for a meaningful future. In Tule, people are acting together based on the local value of comunalidad to adapt to the challenges brought by climate change and to prevent these from growing even bigger. This is ultimately what Tsing, Swanson, Bubandt and Gan would call 'the art of living on a damaged planet', finding in times of loss opportunities for community and connection.[68] The Tule Tree is a prime example of this, and the wisdom it has accumulated in its almost-2,000 years of life is a source of inspiration for anyone looking for it. The tree tells a story of resilience and interdependence, a tale of the 'commitment to living and dying with response-ability in unexpected company' that Haraway appropriately calls for.[69] After all, 'such living and dying have the best chance of cultivating conditions for ongoingness', despite our current vulnerability,[70] as the Tule Tree can confidently attest.

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68 Anna L. Tsing, Heather Swanson, Nils Bubandt and Elaine Gan, *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene* (Minneapolis: University of Minnesota Press, 2017).

69 Haraway, *Staying with the trouble*.

70 Ibid.

Subarna De

Plantiness, Multispecies Conviviality and Changing Human-Plant Geographies

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ABSTRACT

The essay examines changing human-plant geographies in Kodagu, situated in the Western Ghats in southern India. Paying attention to Kodagu helps investigate how plantiness impacts resource politics in indigenous landscapes across pre-colonial, colonial and post-colonial timeframes. This essay will study Sarita Mandanna's *Tiger Hills* (2010) and Kavery Nambisan's *The Scent of Pepper* (2010) from a bioregional perspective to understand the importance of native plants, forests, vegetal and feral spaces across Kodagu's shifting societies and timeframes and examine how human-plant encounters redefine the role of plants in Kodagu's more-than-human geographies. With a particular focus on the Kodava ritual of Kailpodh, this essay will investigate how humans often classify plants as native, invasive, weeds, sacred and unwanted, depending on their impact on human social life, and how ritualising plants such as rajakirita (*Gloriosa superba*) helps to reinhabit Kodagu and deepens the Kodava human-plant interaction across space and time.

KEYWORDS

decolonial bioregionalism, human-plant geographies, plantiness, multispecies conviviality, vegetal political ecology, indigenous knowledge, Kodagu/Coorg, decolonisation.

INTRODUCTION

Human-plant interaction has been the fundamental aspect of cultural ecology since Julian Steward (Head 2007; Head and Atchinson 2009). Plants provide human sustenance and are essential for food, ecology and cultures. These material performances of plants, also known as 'plantiness', have been defining human-plant geographies for centuries (Head, Atchison and Gates 2012; Head and Atchison 2009). Nevertheless, humans often classify plants as native, invasive, weeds, sacred and unwanted, depending on their impact on human social life (Argüelles and March 2022). From the perspective of vegetal political ecology, the agency of plants actively contributes to more-than-human environmental politics based on their plantiness (Barua 2014; Head, Atchison, Phillips et al. 2014; Robbins 2007).

The concept of plantiness was first introduced and defined by Lesley Head, Jennifer Atchison and Alison Gates as 'the assemblage of qualities

that makes a plant' (2012: 3). Plantiness, however, does not depend on a single quality or characteristics of plant but rather on an 'assemblage' that combines material characteristics – that is, modes of representation of how plants are identified with respect to particular material capacities (Head, Atchison and Gates 2012: 26-30; Atchison and Head 2013: 955; Pitt 2017: 97). At the core, it is the biological characteristics of plants that configure their material capacities and help plants become essential players in human social life (2012: 27; Argüelles and March 2022: 1). However, disciplines such as cultural ecology, landscape research, human geography and environmental anthropology have repeatedly established that exploring the role of plants to determine their plantiness or considering the impact of plantiness on human-plant encounters depends on three interdependent variables – place, culture and power-laden societal structures – rather than the biological capabilities of the plants (Argüelles and March 2022: 2; Fleming 2017: 27; Hinchliffe and Whatmore 2006: 135; Rose and Van Dooren 2012: 16). Simply stated, plantiness refers to the role or performance of plants in a particular place, community and culture.

For a deeper understanding of the theory of plantiness, it is, therefore, crucial to know the shared characteristics common to the biological group of plants in different societies and cultures, how plants live, think, communicate and perform as active agents in human social life across various timeframes (Hall 2011; Chamovitz 2012; Marder 2013: 156–60; Pitt 2017). The coupling of plant performance across different times and places and how different societies and cultures perceive plants and their plantiness is what Head, Atchison, Phillips et al. (2014) call vegetal political ecology. Vegetal politics is, therefore, understanding plants' material and political status by recognising plants and their multiple engagements with and beyond humans (Head, Atchison, Phillips et al. 2014: 861–63; Argüelles and March 2022). 'Vegetal political ecology' thus includes investigating collaborative practices and conflicted relationships between humans and plants, challenging cultural, economic and socio-political frames, understanding the changing more-than-human geographies in specific places and documenting/envisaging the exploitative economy related to the belongingness and relocation of plants. Precisely, vegetal political ecology addresses the 'botanical realm and the complexities of plant ontology' (Ryan 2018: 128). With this understanding, it is essential to investigate how plantiness impacts resource

politics in Indian indigenous landscapes such as Kodagu across pre-colonial, colonial and post-colonial timeframes, and how human-plant encounters redefine the role of plants in Kodagu's more-than-human geographies.[1]

To answer these questions, building on S. Eben Kirksey and Stefan Helmreich's concept of multispecies ethnography and Peter Berg and Raymond F. Dasmann's concept of bioregionalism, I here examine Sarita Mandanna's *Tiger Hills* (2010) and Kavery Nambisan's *The Scent of Pepper* (2010) to understand the importance of native plants, forests, vegetal and feral spaces across Kodagu's shifting societies and timeframes.[2] In doing so, I investigate the plantiness of individual plants and how the classification of plants as native, invasive, weeds, sacred and unwanted depends on their impact on human social life. With a particular focus on the Kodava ritual of Kailpodh, I examine the transition of rajakirita (*Gloriosa superba*) within Kodagu's changing landscapes and societies from being 'native' to 'unwanted', 'invasive', 'weed' to becoming the indigenous 'sacred' ingredient used in the Kodava ritual of Kailpodh.

Kodagu is situated in the Western Ghats in Karnataka in South India and is home to the indigenous Kodava community.[3] In pre-colonial India, the Kodava community perceived the plants as their more-than-human companions and valued their material performances to configure their place-based culture. However, since the nineteenth century, European colonisers caused massive deforestation in the Kodagu

1 In this essay, I use the term 'indigenous' to refer to the Kodava people and their culture, heritage, knowledge system and lifeways that grew *in situ* prior to colonisation; see Shaw, Herman and Dobbs 2006: 268. Because Kodava ancestors owned the land in Kodagu prior to colonisation, and they share a strong spiritual connection with their ancestral land, I call the Kodava people 'indigenous'. I use the term 'landscape' to refer to a panoramic view or a cultural image of place (here, Kodagu), an individualist way of seeing and conjuring the natural scenery that separates the subject from the object by eliminating alternative modes of experiencing our relations with nature; see Cosgrove 1984: 13, 262; Pavord 2016: 353; Stilgoe 2015: ix, 17–18, 31.

2 In this essay, 'native' refers to the plant and animal species that 'occur naturally in a particular region [here, Kodagu], state, ecosystem, and habitat without direct or indirect human actions' and do not cause any harm to the environment; see Guiaşu 2016; Morse, Swearingen and Randall 2000.

3 Kodagu is the indigenous name of Coorg. Kodava people are also known as Coorgs.

tropical highlands to establish colonial coffee plantations (Nambisan 2010; Gadgil and Guha 2012).[4] The continuous global thinning of native plant species in Kodagu led to immense biodiversity loss, transforming, affecting, and displacing human and more-than-human lives.

Paying attention to Kodagu provides an example of adopting a decolonial bioregional approach that transforms colonial coffee plantations into sites of multispecies conviviality and resituates human-plant relationships ecologically to perform conservation and restoration activities. Multispecies conviviality refers to the fundamental aspect of living well together with more-than-humans (Donati 2019). The decolonial bioregional approach aims towards living a convivial lifeway that decolonises most of the economic, social and cultural activity around a naturally defined region/bioregion and helps overcome climate crisis and ecological breakdown. This line of inquiry builds on the emerging anthropological concept of 'multispecies ethnography', which Kirksey and Helmreich (2010) explain investigates 'how a multitude of organisms' livelihoods shape and are shaped by political, economic, and cultural forces' (2010: 546). In examining this interrelatedness, multispecies ethnographers study 'contact zones where lines separating nature from culture have broken down, where encounters between *Homo sapiens* and other beings generate mutual ecologies and coproduced niches' (Kirksey and Helmreich 2010: 546–47). The advent of European colonisation in Kodagu broke down their traditional nature-culture relationship separating their culture from nature.[5] To mend traditional ways and remain rooted in place, the Kodava people began to ritualise native plants and forests to reinhabit their bioregion – that is, to decolonise the European coffee plantation culture and practise 'more-than-human conviviality' (Rigby 2018: 73) on the plantations to 'generate mutual ecologies' (Kirksey and Helmreich 2010: 547).[6] Kate Rigby defines 'more-than-human conviviality' as 'resituating 'humankind ecologically' along with

4 Coffee in Kodagu is a non-native plant. Continuous coffee cultivation in Kodagu led to massive topsoil erosion.

5 I use the term 'tradition' and 'traditional' to refer to Kodagu's historical practice, a 'central process of Indigenous survival and renewal'; see Clifford 2013: 28–29

6 I use the term 'place' to refer to the Kodagu 'spaces' that the Kodava people have 'made meaningful' and are 'attached to' in one or more ways; see Cresswell 2004: 7–8.

'otherkind (plants, animals, and fungi, but potentially also rivers, wetlands, and woods, for example) ethically' (2018: 73).

Specifically, to understand how Kodava indigenous ecological knowledge includes more-than-human conviviality, this article draws inspiration from two place-based historical fictions: Sarita Mandanna's *Tiger Hills* and Kavery Nambisan's *The Scent of Pepper*.[7] *Tiger Hills* and *The Scent of Pepper* are set in Kodagu at particular epochs, depicting pre-colonial, colonial and post-colonial Kodava society. *Tiger Hills* begins with a pre-colonial Kodava lifeway and narrates the communal experiences of the Kodava people with the advent of the European agency. Spanning four generations, *Tiger Hills* tells the life story and communal lifeways of Devi, an independent dominant female persona, and Devi's childhood friend and later husband, Devanna. The novel narrates the influence of European colonisation, the establishment of the coffee plantations in Kodagu and how this transformed the sociocultural lifeways and the ecology of the place and the people between 1878 and 1936. *The Scent of Pepper* begins around 1855 and ends with the uprising leading to Indian independence. Set in Athur in Kodagu, the novel narrates the changing lifeways of Nanji, a strong-headed Kodava woman, her son Subbu and her grandson Thimmu. The novel significantly shows the transformations of Kodagu's nature and culture across four generations, describing pre-colonial, colonial and post-colonial Kodagu.

Inspired by plantiness and its role in shaping human cultures, I focus on Sarita Mandanna's *Tiger Hills* and Kavery Nambisan's *The Scent of Pepper* to show how literary narratives help understand plants' social and material production. A significant enquiry into these texts demonstrates how specific native plant species and their plantiness have been intricately woven into 'the social fabric of place and community' (De 2022b: 37) and encourage convivial lifeways to live-in-place and reinhabit the Kodagu bioregion.[8] Reading Sarita Mandanna's *Tiger Hills* and Kavery Nambisan's *The Scent of Pepper*, in the following section, 'Plantiness and bioregional culture in pre-colonial Kodagu', I will

7 In addition to the historical novels of Sarita Mandanna and Kavery Nambisan, this essay includes qualitative ethnographic data (such as personal conversations) from my fieldwork in Kodagu between 2016 and 2018 and refers to ethnographic texts on Kodagu: see Perry 1855; Richter 1870; Thurston 1913.

8 Living-in-place and reinhabitation are core bioregional concepts; see Berg and Dasmann 1978.

first contextualise convivial Kodava lifeway in pre-colonial Kodagu to understand the importance of more-than-human spaces and how the plantiness of native plants defines Kodava bioregional culture. The next section, 'Rajakirita, more-than-human spaces and the ritual of survival', will explore the diverse more-than-human spaces in Kodagu and illuminate how material performances of plants shape Kodagu's indigenous culture, with particular reference to rajakirita and Kailpodh. The third section, 'Changing human-plant geographies and vegetal political ecology', examines the vegetal politics that changed human-plant geographies in colonial Kodagu, followed by the fourth section illustrating how bioregional reinhabitation endorses convivial worldmaking in colonial and post-colonial Kodagu. I will conclude by summarising how the transition of rajakirita and coffee within the transforming Kodava society deepens Kodava human-plant interaction across space and time.

PLANTINESS AND BIOREGIONAL CULTURE IN PRE-COLONIAL KODAGU

The Scent of Pepper begins with the 'maniacal music' of the jackal 'in the bamboo groves' when 'the sun bled behind the areca palms' (Nambisan 2010: 3). The *Tiger Hills* opens with Devi's birth on 'a clear day in July' with the sowing season upon them' and 'every field in Coorg' filled with white herons and 'bright green paddy' (Mandanna 2010: 3). *The Scent of Pepper* begins describing the forested landscape of pre-colonial Kodagu, whereas *Tiger Hills* begins showing how the livelihoods of the Kodava people are intertwined with their landscape. Before colonisation, the Kodava people were mainly hunter-gatherers and forest dwellers, also cultivating their staple food, rice, in paddy fields. From a bioregional perspective, the Kodava community was living-in-place. Living-in-place means living in harmony with nature, 'following the necessities and pleasures of life as they are uniquely presented by a particular site, and evolving ways to ensure long-term occupancy of that site' (Berg and Dasmann 1978: 217).

Living-in-place in Kodagu means practicing multispecies conviviality in everyday life. *The Scent of Pepper* and *Tiger Hills* describe Kodava homes inclusive of plants and livestock: the bitter lemon and mango trees in front and the fringe of areca palms along the chicken coop, the

granary, the pigsty and the barn adjacent to their paddy fields (Mandanna 2010; Nambisan 2010). The presence of the livestock with the plants within the home premises shows that the community considered the more-than-human as their kin. In pre-colonial harmony, multispecies conviviality was the social dimension of the Kodava lifeway where the Kodava people 'share[d] an unshakable sense of kinship' to 'their land' (Poonacha 1997; Mandanna 2010: 26). They considered Iguthappa Swami as 'the god of the hills' and Ayappa Swami as the 'god of the jungle' (Mandanna 2010; Nambisan 2010; Perry 1855; Richter 1870).[9]

Deborah Bird Rose and Thom Van Dooren state that conviviality requires inclusiveness and humans should 'make room for the other in activities and shared spaces' (2012: 17). As a hunter-gatherer community, the pre-colonial Kodava community included native plants in their daily activities. During festivals, Kodagu women climbed forested hills in search of wildflowers and wore them on their ears, while Kodava men collected toddy from the doub or tal palm trees (*Borassus flabellifer*, native to Kodagu) for toddy-drinking sessions (Nambisan 2010: 19, 41). Mandanna and Nambisan provide extensive narratives about the Kodava native plants, their material performances and how they were included in the lived-in Kodava communal spaces. For example, 'madh toppu' or medicinal green (*Justicia wynaadensis*) was cooked along with 'jaggery and coconut milk at the onset of monsoons' (Mandanna 2010: 52). Because it prevented 'no fewer than forty-seven maladies' when consumed during the monsoons, it was known as the magical leaves of the monsoons (Mandanna 2010: 52). Banana *(Musa acuminata* and *Musa balbisiana*) is another native plant cherished by the Kodava community and serves an integral part of their daily lived-in experience. They use banana leaves as plates, curry the stem, consume banana as fruit and boil a 'pot of banana' until it 'turned sticky purple-red' to prepare jam and store it in jars (Nambisan 2010: 27). This shows that the pre-colonial Kodava community was entirely reliant on plant-based resources at the base of their existence.[10] Viewing plants as a sustainable source of diet and integrating them into daily lived-in experiences and

9 The Kodava word 'Swami' means Lord in English.

10 Kodagu's sustainable native plant-based diet is called 'bioregional eating'; see De 2022b.

culture shows that the pre-colonial Kodava community unknowingly lived a more ecological and bioregional lifeway.

Plants play a 'crucial role in the formative myths of all cultures, from Yggdrasil, the World Tree of Norse lore, to Asvattha, the cosmic tree of the Upanishads, to the . . . Tree of Life in the Garden of Eden' (Laist 2013: 10). From the thirteenth century, Indian Bhasa literature made various references to native flowers and plants that have shaped traditional cultures in diverse Indian societies (Ward 1999: 15–16). Similarly, plants are pivotal in defining the indigenous Kodava belief system. The Kodava community considers the native butter tree (*Madhuca longifolia*) as 'sacred' because it was beloved by Krishna Swami, the Hindu god, who used the spoon-shaped leaves to steal butter from his mother's churn (Mandanna 2010: 53). According to Kodava indigenous knowledge, the pipal, also known as the sacred fig (*Ficus religiosai*) and the wild gooseberry (*Physalis minima*), has immense medicinal use, brings good luck and provides shade, and its wood is used in daily Kodava lifeways for cooking and warming the house and livestock (Mandanna 2010: 53). The Kodava believe the Ashoka tree *(Saraca asoca)* to be a 'no-sadness' tree because 'all woes' are banished if a Kodava sits 'beneath its branches' (Mandanna 2010: 54). Kodava folklore states that the Ashoka tree only flowers when a beautiful woman places her henna-tipped feet upon its trunk (Mandanna 2010: 54). These botanical associations and imaginations reflect on how Kodagu's origin myths perceived plants and plantiness.

From Kodagu's formative myths and folktales, it becomes evident that the material performances and 'cultural background' of plants define who they are, their 'ontological boundaries' and basic assumptions of how these plants potentially contribute to shaping Kodagu's indigenous cultures (Laist 2013: 14; Marder 2012, 2015). Here, 'culture' refers to ways of living, lifeways and economic contribution to society. The 'cultural background of plants' refers to 'interactions and relationships among plants as well as between plants, other organisms, and the environment' (Gagliano and Grimonprez 2015: 149; Marder 2013). From a bioregional perspective, native plants determine the bioregional culture of a place to support life sustainably (Snyder 1990: 49; Thayer 2003: 36). 'Bioregional culture' refers to communal practices in the daily life of the bioregion (De 2022b: 42). While illuminating how native plant species define the bioregional culture of a place, Gary Snyder

explains how maize, rice and sweet potato indicate places and cultures (in Portland, Oregon) (1990: 49). Hence, the plantiness of Kodagu's native plant species defines Kodagu's bioregional culture.

RAJAKIRITA, MORE-THAN-HUMAN SPACES AND THE RITUAL OF SURVIVAL

Since the pre-colonial period, rajakirita (*Gloriosa superba***)** has defined Kodagu's bioregional culture and is closely linked to the Kodava socio-cultural world that defines their livelihood. Rajakirita is also known as the gunflower and is considered 'the favoured flower of heroes' (Nambisan 2010: 11). *The Scent of Pepper* mentions how Nanji kept 'bunches of Rajakirita ... in a copper pitcher' on the table of his father-in-law to rejuvenate his mood when he was grieving the death of his younger son Machu (Nambisan 2010: 11). Mandanna in *Tiger Hills* describes rajakirita as 'the gun flower groves that grew in the jungles of Coorg but withered away in captivity' (2010: 54). They bloomed each year for only one week, during the traditional festival of Kailpodh, also known as Kailmuhurtha, a festival of arms celebrated every year on 3 September to mark the commencement of Kodagu's hunting season. Rajakirita is an orange-yellow blossom that the Kodava community used in pre-colonial Kodagu to decorate the mouth of every gun during Kailpodh (Mandanna 2010: 54). According to the traditional Kodagu belief system, the celebration of Kailpodh remains incomplete without rajakirita.

In Kodagu, rajakirita thus defines the 'practical mode of signification to the spiritual and cultural kind of symbolism that flowers have come to embody' (Laist 2013: 14). Rajakirita's diverse material performances make it 'biologically intimate' (Argüelles and March 2022: 45) to the Kodava community. Kodava interactions with rajakirita include using the flowers to rejuvenate mood, performing hunting rituals and celebrating Kailpodh. These enrich the symbolic profile of rajakirita in Kodava communal living. More importantly, the relationship between rajakirita and the Kodava community shows how plants and human culture are deeply interwoven and how plants shape cultures and livelihoods around them. This becomes more prominent in understanding the ritual of Kailpodh and how this particular ritual is entirely dependent on the performances of plants, their meaningful contribution to

Kodava human life, and the human-plant relationship embedded in the crux of their socio-cultural, ecological and bioregional framework for sustainable livelihood in Kodagu.

During pre-colonial Kailpodh celebrations, the Kodava people worshipped their traditional hunting weapons with exceptional food and offerings. The Kodava ritual of Kailpodh is also known as the ritual of survival because it is a celebration of respecting their forests, hunter-gatherer culture and livelihood (Machaia, personal conversation). Hunting and gathering forest produce for food and rituals was integral to Kailpodh celebrations. This shows how the plants and their plantiness helped the Kodava community to 'perform' and 'do' the landscape (De 2022a: 231–32; Olwig 2008: 87). 'Performing' and 'doing' the landscape with eyes, ears, nose is equivalent to experiencing the sense of place and contributes to defining the bioregional culture of place (De 2022a: 231; Olwig 2008: 82, 87). For example, during Kailpodh, Kodava women follow forest trails to collect jasmine flowers in plantain leaves and stitch them into long strings to adorn their long plaits because of their beautiful smell (Mandanna 2010: 106). In collecting jasmine from the forested landscapes, the Kodava women practise their traditional culture and perform in the landscape where the smell of jasmine and the jasmine itself become synonymous with Kailpodh, identifying with the sense of place and its dominant culture. Conviviality, then, appears to be a matter of living well and respecting nature. Bioregional living-in-place shares the same fundamental concerns of living well in harmony with nature.

Living-in-place in Kodagu thus endorses multispecies conviviality.[11] Conviviality, here, primarily refers to living in harmony with more-than-humans. To understand how Kodava indigenous practices are bioregional and convivial, it becomes pertinent to know how Kodagu's food and eating practices are linked to their bioregion. Kelly Donati employs conviviality 'to explore the co-constituted social worlds' of gastronomy (2019: 119). This means that food items and communal eating practices build a bioregional culture that encourages sustainability. The foundations of Kodava gastronomy can be configured from

11 Kodava indigenous practices are inherently bioregional and endorse a convivial relationship with more-than-humans even before the official terms of bioregionalism and multispecies conviviality were introduced to the academic lexicon.

their traditional dietary habits, which include (but are not limited to) 'cardamom-clove-and-cashew-studded rice' heaped on banana leaves (Mandanna 2010: 105), partridge fried in pork, 'salted pork, dried mathi [dried sardine], pickled mangoes' (Nambisan 2010: 212–13), 'mutton curry with soft and thread noolu puttoo [rice dumplings], pork pulav [a variety of rice prepared with pork] with wild mango chutney, and payasam [sweet porridge] flavoured with poppy seeds" (63), hot ottis [rice flour chapatti] with crab chutney [sweet crab pickle], fried bamboo shoots (Mandanna 2010: 129), mutton bones seasoned with onions and peppercorns (19), fish stuffed with coriander and tamarind, crisp sizzling pork (13). The consumption of meat from native animals is bioregional because it is collected by the hunter-gatherer community after ritualistic slaughtering and hunting in the wild. Since primordial times, Kodava traditional gastronomy has been a more-than-human endeavour where bioregional eating takes on a more-than-human convivial approach while maintaining the perfect balance in the local food chain and remaining fundamentally indebted to the native plants and their plantiness.

At its etymological roots, conviviality attends fundamentally to the question of living well together (Donati 2019). Conviviality 'reknits' social bonds (Gertenbach, Lamla and Laser 2021: 392; Latouche, 2009: 42). Given that the Kodava community shares a kincentric relationship with their more-than-human world, hunting and slaughtering play significant roles in the traditional Kodava belief system, are associated with the honour and the ecology of the region and are considered sacred. Based on animistic ideology, hunting, meat, food, and traditional festivals are closely related to Kailpodh, Kodagu's daily gastronomy, and indigenous lived-in experiences.[12] During hunting, the forests represent nature, the space for more-than-humans. The collective plantiness of different kinds of native plants within Kodagu's feral spaces contributes to hunter-gatherer traditions. For example, rajakirita is used to evoke spirits and pay homage to the souls of more-than-humans before killing them. Similarly, 'the leaves of narvisha', also known as nirvishi (*Chassalia curviflora*), have 'a pungent odour that was anathema to snakes, poisonous even to the mighty tiger' and hence are used to deter animals from

12 Animistic ideology here refers to the philosophical and religious concept founded on belief in the existence of multiple spirits; see Rooney 2000: 135. Indigenous hunting follows bioregional parameters of place-based culture and connects profoundly with the ecology, plantiness and animal spirits; see De 2022b.

attacking (Mandanna 2010: 52). As a result, in Kodava feral spaces, plants were both provider and protector to the Kodava hunters. As providers, the trees collectively created forests, the feral spaces providing the hunting ground, and simultaneously protected the hunter in the wild spaces with their material performances.

The material performances of plants, then, collectively created and protected pre-colonial Kodava native feral spaces. In the Kodagu bioregional context, the hunter, the hunted, the veneration of the weapons used to hunt wild animals, the use of forest produce to perform hunting rituals and the forests all reciprocate the belief in the sacred and provide evidence of convivial worldmaking. Invoking animal spirits in Kodagu rituals such as Kailpodh and during hunting is another example of doing and performing the Kodava landscape. Here, convivial worldmaking includes humans, more-than-humans (animals, plants) and multiple spirits. Rane Willerslev argues that humans exist in a 'betwixt-and-between state' representing the souls of animals and humans (2007: 165). Respecting the hunter, the hunted, the forests, and staying protected from their more-than-human companions in the feral spaces represent an integral aspect that requires celebration, and Kailpodh celebrates this animistic hunter-gatherer culture; hence, the Kodava community considers Kailpodh as the ritual of survival.

However, with the advent of European colonisation in Kodagu in the final quarter of the eighteenth century, Kodagu lost its dense mountain forests to colonial coffee plantations. The topographical transformation, biodiversity loss and environmental degradation threatened Kodagu native ecology and their place-based traditional knowledge rooted in place. To survive the cultural and ecological crisis, the Kodava community started practising agriculture as their livelihood instead of hunting-gathering. Gradually, the Kodava community adopted colonial coffee plantation culture. This entirely changed the Kodava human-plant geographies.

CHANGING HUMAN-PLANT GEOGRAPHIES AND VEGETAL POLITICAL ECOLOGY

Tiger Hills narrates the influence of the European colonisers on the Kodava people. Devanna, the dominant male persona trained in a

mission school by a European coloniser 'often felt there were two parts of himself – Mission-Devanna and Coorg-Devanna' (Mandanna 2010: 55). Mission-Devanna helped the colonisers to identify native plants, samples of which they arranged to send to the Kew gardens in London (Mandanna 2010: 56–59). Mission-Devanna began to look at plants as a commodity, which can be 'assigned a value and exchanged' (Lane 2013, p. 319; Marx and Engels 1988, p. 30). On the other hand, Coorg-Devanna continued his indigenous approach to cherish 'the sweetness of the nectar that pooled inside the lantana blossoms' and enjoyed the 'heat of germinating paddy slush against his bare feet' (Mandanna 2010: 56). Devanna was aware of the differences between his indigenous-self, rooted in convivial relationship with plants, and the colonised self who identified native plants for the coloniser-ruler to transport to the West. However, under colonial influence, Devanna managed to keep his two halves 'unquestionably' separate, not allowing his two selves to 'encroach into the other's territory' (Mandanna 2010: 56).[13] This foregrounds how the colonial influence powerfully changed the relationship between native plants and people in Kodagu, where people include both indigenous and settler communities. This changing human-plant relationship shakes the moral standing of Kodagu's indigenous people's consideration of their plants as kin and more-than-human companions.

Moving in a related direction, *The Scent of Pepper* portrays Thimmu, an indigenous Kodava brought up under colonial influence. The novel depicts how Thimmu inherited the native forests that belonged to his father, Subbu and grandmother, Nanji, only to fell the trees and split them into logs: 'Trees were being chopped down and flung in a mountainous heap . . . haystacks were on fire … flames burst in the sky, lighting up the moonless night' (Nambisan 2010: 262–63). Thimmu represents how the colonial influence changed the mindset of the indigenous Kodava community and their attitude towards their native land and landscape.[14] With the Kodava community considering native plants as commodities, they cleared hundreds of 'acres of underbrush from beneath their holdings of rosewood, and turn[ed] to coffee' (Mandanna

13 Devanna represents the colonial mindset of the indigenous Kodava people in the late nineteenth and early twentieth century.

14 I differentiate between land, which has ownership and can be encapsulated with all senses, and landscape, which remains a panoramic way of regarding nature through only the visual senses and cannot be owned.

2010: 222; Nambisan 2010: 261).[15] This shifting attitude of the indigenous Kodava people towards their native vegetation sheds light on how changing human-plant geographies in Kodagu's transformed landscapes reshaped Kodagu's environmental history, society and economy.

Mandanna in the *Tiger Hills* introduces Reverend Gundert, a German coloniser and a 'keen amateur botanist' who came to Mercara in Kodagu 'looking for exotic plants' and was ready to 'pay a fair sum for anything that caught his fancy' (Mandanna 2010: 52). Here, 'exotic' plants refer to Kodagu's native plants such as jasmine (*Jasminum auriculatum*) and sampigé (*Magnolia champaca*). The change in the nomenclature of plants from 'native' to 'exotic' in the transformed Kodava society emphasises the political agency of plants and redefines their plantiness. Subsequently, this leads to political consequences of plant capabilities in more-than-human geographies. More importantly, the multiple identities of plants determine how plants act in transformed landscapes and communities, how the relative plantiness of plants is perceived in transformed space and time and how plants continue to perform in different worlds (Head, Atchison, and Gates 2012: 10, 159–62). For example, soon after the colonisers treated the native jasmine and sampigé as 'exotic' their demands increased, with the indigenous community uprooting 'fiercely coloured orchids, sweet-smelling sampigé and slender shoots of wild jasmine' from their native vegetal landscapes and bringing them to Gundert (Mandanna 2010: 52). This particular act questions the environmental justice of plants and introduces insights from vegetal politics that allow reimagining of plant performances, their subjectivity, life, agency and ethical status. The ethical and environmental justice issues become prominent when, on receiving the native Kodava plants which were 'exotic', Gundert planted some in his missionary garden while shipping most to Kew gardens in London (Mandanna 2010: 52). Moreover, with Gundert expanding his collection of 'indigenous medicinal plants' and sending them to the Kew gardens (Mandanna 2010: 52), the indigenous Kodava plants began to acquire new ecologies in exotic landscapes. This changing of societal landscapes and the effect of colonialism on native plants, their plantiness and the changing human-plant geographies undoubtedly 'typifies people-plant relationships' and connects plant performances to

15 Rosewood (*Dalbergia latifolia*) is native to Kodagu.

vegetal political ecologies (Fleming 2017: 26, 31). The native plants that once defined the Kodava lifeway in pre-colonial Kodagu soon crossed normative nomenclatures, territorial borders and taxonomic boundaries and became 'exotic' in Kodagu's white settler colony, gaining a new identity, life, nature, culture, environment and subjectivity.

Within the domain of more-than-human scholarship, the displacement and reorientation of plants within their native landscapes after colonisation raises serious questions of ethical responsibilities and environmental justice. This became more prominent when the colonisers considered them 'unwanted' after sending samples to London and cleared the native Kodava vegetation to plant the non-native cash crop, coffee.[16] In Western practices, more-than-humans 'are generally relegated to the background, tolerated only on human terms and in their proper places' (Rose and Van Dooren 2012: 16). We find a similar attitude towards Kodava native plants within Kodagu's transformed colonial society. The native plants, such as rajakirita and narvisha, experienced continued disorientation and shifting identities. Along with the white settlers, the Kodava people began to consider their native plants 'unwanted' and cleared native vegetation to plant non-native coffee. *The Scent of Pepper* narrates how the Kodava indigenous community started acquiring huge coffee plantations. Rao Bahadur Madaiah, Nanji's father-in-law and Kodava community elder, purchased 'one hundred and twelve acres of newly-planted coffee and five thousand battis of land in Athur' from a European coloniser in the late nineteenth century for his son Baliyanna, Nanji's husband (Nambisan 2010:10). Purchasing colonial plantations from the British planters in Kodagu became a new trend in colonial Kodagu. Nanji's son Subbu attempted to make a deal to purchase a 'two-hundred-acre estate with a bungalow' from Edward Rice, who was leaving Kodagu to return to England (Nambisan 2010: 242). These passages illustrate how coffee,

16 Coffee was introduced to Kodagu from Ceylon, present day Sri Lanka. Since the mid-seventeenth century, Ceylon had been the top coffee-growing country on earth. From 1872, Ceylon's coffee production seriously declined because of the leaf rust disease caused by fungus *Hemileia vastatrix*. After Ceylon's coffee production stopped in 1879, the European colonisers were searching for an alternative. They found Kodagu's dark-soiled mountainous region at an elevation of about 1,800 feet above sea level an ideal alternative to Ceylon. For a more comprehensive colonial history of the coffee plantations in India and Ceylon, see Lewis 1909, McCook 2006, Mendis 2005, Perry 1855, Richter 1870, Thurston 1913, Wenzlhuemer 2008.

the new economic crop introduced by the European colonisers, changed the attitude of the Kodava people toward their native vegetation and colonised the Kodagu landscape and culture.

James Ellis rightly observes that plants 'first colonised the planet' (2019: xiii). Kodagu shares a similar history, with the introduction of non-native coffee into Kodagu's landscape. The coffee plant gained power because of its material performance and gradually colonised Kodagu's land and landscape, threatening Kodagu's indigenous nature and culture. Since the late nineteenth century, the material performance of the non-native coffee in Kodagu enforced both indigenous and colonial ways of perceiving Kodagu's pre-colonial native vegetation as a lower form of being, often identifying them as 'unwanted' and 'weeds'. A plant 'growing out of place' and 'growing wild' is called a weed (Campbell 1923: 50; Harlan 1992: 85). Weeds are traditionally 'regarded as cumbering the ground or hindering the growth of superior vegetation' (Harlan 1992: 85). In colonial Kodava society, the coffee plant broke indigenous human-plant relationships and established concrete capitalist ways of relating to plants whose material performances assured profit. This defined Kodagu's changed communal relationship to their land, determined empirical methods of capitalising plants and undermined all native vegetation as weeds or unwanted.

Before colonisation, the Kodava rituals, paddy fields and forests were more-than-human multispecies spaces and sites of convivial worldmaking. With the burning of native forests to create colonial monoculture coffee plantations, the convivial spaces were lost. This resulted in the remaining native plants, such as the sacred rajakirita, becoming *unwanted weeds* that would threaten the new economic performer of the region, coffee. This colonial practice of identifying the native rajakirita as an unwanted invasive weed threatened the traditional ceremony of Kailpodh, making it a forgotten ritual for the hunter-gatherer community.[17] Rajakirita became an invasive weed because its material performance could not be capitalised and it interrupted coffee monocultures. Weeds are often considered invasive and botanical thinking encourages controlled growth of invasive plant species. Following the same line of thought, the colonisers controlled Kodagu's long cherished rajakirita, which led rajakirita to

17 For a detailed environmental history and ethnographic survey of Kodagu in the late nineteenth and early twentieth century, see Thurston 1913.

gradually disappear from Kodagu's landscape towards the late nineteenth century (Machaia, personal conversation; Richter 1870; Thurston 1913). From the perspective of vegetal political ecology, the social change in the Kodava society was so potentially entangled in the environmental politics of human-plant geographies that, in Kodagu, it becomes pertinent to understand the vegetal political ecology of plants synonymously with multispecies ethnography and bioregionalism. The following section will investigate how the Kodava indigenous people used their indigenous knowledge systems to decolonise the vegetal politics of Kodagu's coffee plantations and revive their nature-culture relationship.

BIOREGIONAL POSSIBILITIES AND CONVIVIAL WORLDMAKING IN KODAGU

'Bioregion' refers to 'the geographical terrain and a terrain of consciousness – to a place and the ideas that have developed' about how to live in a place (Berg and Dasmann 1978: 218). Geographically, a bioregion is a 'separate whole' with distinct 'climatology, physiography, animal and plant geography, natural history, and other descriptive natural sciences' (Berg 1978; Berg and Dasmann 1978: 218). Kodagu's wet climate, colonial history of coffee plantations, black alluvial soil, native biodiversity, mountainous topography, indigenous community and distinctive cultural practices make it a bioregion. Living-in-place and reinhabitation are fundamental bioregional concepts for practicing bioregional culture. The changing human-plant geographies in Kodagu with the advent of coffee turned it into an injured land.[18] Prominent bioregional scholars such as Berg and Dasmann (1978), Gary Snyder (1990, 1995), Stephanie Mills (1995), Michael V. McGinnis (1999), Kirkpatrick Sale (2000) and Robert Thayer (2003) argue that bioregional reinhabitation helps in restoring the injured land/bioregion and reviving the lost nature and culture of the place by developing a bioregional lifeway.[19] Here,

18 Extensive human exploitation leading to topographical changes that threaten the native ecosystem of the place and cause an immense loss of biodiversity makes a land injured; see Berg and Dasmann 1978.

19 All the inhabitants of the bioregion, including both the indigenous people and the settler community, can practice reinhabitation and live a bioregional lifeway. However, in Kodagu, even today, only the indigenous Kodava people reinhabit their land.

the adjective 'bioregional' refers to the 'intellectually rich and culturally diverse way of thinking [about] and living' an ecological lifeway rooted in the bioregion (McGinnis 1999: 1–3; Snyder 2013: 44). In this section, I investigate the bioregional possibilities in colonial/post-colonial Kodagu (1920–2016) and argue that the Kodava community reinhabit Kodagu to re-establish their human-plant relationships and revive the nature-culture of the place.

The continuous cultivation of monoculture coffee continued until the Kodava people realised how the drastic ecological imbalances threatened their indigenous culture. To counter the severe ecological crisis and restore their 'natureculture' (Haraway 2004: 210) relationships, the Kodava people began to reinhabit their ancestral land by growing coffee under native shade trees such as orange, mango and jackfruit (Mandanna 2010: 223–252; Nambisan 2010, 35–48). This became a significant turning point in the environmental history of Kodagu because it restricted the adverse effects of land-use changes, restored the bioregion's lost ecology, maintained the topsoil that enables long-term survival, and provided the resources of native crops and other ingredients for daily survival (De 2022b: 42). This particular indigenous knowledge helped the community to revive their native ecosystem and facilitate the return of native vegetation to Kodagu's colonial plantations, turning them into mini forests. Bioregional reinhabitation in Kodagu thereby undoes Western thought and practice and once again connects 'people, plants and places' (Tsing 2012: 145) in colonial and post-colonial Kodagu. This not only makes native plants agents of revival but also transforms the non-native coffee into a bioregional crop in Kodagu.

Focusing on the agency of crop plants, it is crucial to understand that reinhabitation in Kodagu encourages convivial worldmaking in maintaining ecological sustainability while simultaneously growing coffee along with native crops. This indigenous creative ecology once again changed the attitude of the Kodava people towards more-than-humans. In *Tiger Hills*, Devi, the dominant female persona, proclaims that she knows the histories of [Kodagu's] trees' even 'before they were rooted to the ground' (Mandanna 2010: 53). Again, in *The Scent of Pepper* 'the sound of the trees being split into logs' felt like 'bleeding wood' to Subbu (Nambisan 2010: 262). This shows that, due to reinhabitation, the agency of plants in Kodagu once more reshaped

the indigenous community's existence and culture, which is founded on convivial worldmaking. I argue elsewhere (De 2023) that this indigenous approach is bioregional and call it 'decolonial reinhabitation' because the indigenous Kodava people undo Western practices on their plantations to reinhabit their ancestral land and re-establish lost human-plant relationship.[20]

Decolonial reinhabitation in Kodagu caused rajakirita to naturally return to Kodagu's landscape, reviving Kailpodh. The Kodava people then ritualised rajakirita and created sacred groves on their plantations to protect native rajakirita. Rajakirita, thus, becomes the social agent of revival and reconnection. Ritualising plants as 'sacred' from being 'unwanted weeds' once again transformed the plantiness of rajakirita and changed the dynamics of the Kodava human-plant relationship. Hence, I observe the ritualising of rajakirita as a crucial decolonial reinhabitory strategy. Here, the native plant becomes a bioregional agent to undo western plantation science and employ Kodava indigenous knowledge on Kodagu's transformed landscapes. In this way, sacred groves on Kodagu's coffee plantations reintroduced native functional biodiversity in Kodagu within a hundred years (from around 1915 to 2016). This reinhabitory practice of ritualising and preserving native plant species is what Kate Rigby refers to as a significant 'cultural shift to resituate humankind ecologically' (2018: 73). Again, the Australian ecophilosopher Val Plumwood understands similar reinhabitory practices as 'cultural practices of "deep sustainability"' (2009). In reinhabiting Kodagu and reviving the convivial relationship with the more-than-humans on colonial sites of western plantations, Kailpodh was reintroduced to post-colonial Kodagu.[21]

20 I coined the term 'decolonial reinhabitation' and argue that bioregional reinhabitation in Kodagu is decolonial. To understand why reinhabitation in Kodagu is decolonial and not postcolonial, see De 2023.

21 In post-colonial Kodagu, Kailpodh continues to be celebrated. Though hunting is banned in post-colonial India, Kodava people still go for forest walks on the coffee plantations which are now mini forests housing diverse native vegetation and sacred groves. Instead of hunting, a coconut is shot to mark the commencement of the traditional hunting season, followed by a traditional meal prepared with fruits and vegetables collected from the coffee forests and sacred groves.

CONCLUSION

Within transformed Kodava society, rajakirita enters multiple spaces. Before colonisation, rajakirita was 'native'. In colonial Kodava society, rajakirita became an unwanted invasive weed. On reinhabiting Kodagu by undoing Western practices and turning coffee plantations into native forests, rajakirita naturally returned to Kodagu and was ritualised and recognised as 'sacred'. Unpacking rajakirita as native, invasive, weed and then sacred reveals the power of the vegetal politics of plants based on their plantiness and how they construct landscapes, society, culture and environmental narratives. John Charles Ryan rightly observes how 'plants constitute certain social practices and customs as well as the ethics surrounding them' (2012: 104). The transition of rajakirita and coffee across time and space illuminates how plants feature in different indigenous, colonial and post-colonial settings and evolve as essential players in human social life.

More importantly, the material performances of individual plants in Kodagu show how a flowering plant (rajakirita) and a crop plant (coffee) become entangled in the more-than-human social life and earn the power to affect, displace and transform landscapes and cultures while contributing fundamentally in shaping cultures and societies around them. In this regard, bioregional concepts of living-in-place and reinhabitation serve as vital practical solutions to understand human-plant ethnographies, mediate human-plant entanglements and inspire vegetal politics to break down hegemonic plant performances and re-establish convivial worldmaking to encourage cultural production for deep sustainability. In indigenous environments of crisis such as Kodagu, decolonial reinhabitation becomes the appropriate approach to collectively identify and represent the humans and the more-than-humans as 'we', strongly asserting the value of convivial worldmaking including the more-than-human world.

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Wetland Plants and Aboriginal Paludiculture in North- and South-Eastern Australia

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ABSTRACT

Aboriginal peoples in north- and south-eastern Australia practiced paludiculture, the cultivation of wetland plants for consumption, for many thousands of years before Europeans invaded them in the 1830s and 1840s. This article focuses on the yam daisy (*Microseris* spp.) in south-eastern Australia and the bulkuru sedge (*Eleocharis dulcis*) in north-eastern Australia in historical and recent accounts of wetlands in both regions. Aboriginal people in both places cultivated and harvested the tubers of both plants. Recent debates about Aboriginal peoples' cultivation of native plants and whether they constitute agriculture apply the European value-laden yardstick of stages of human development with agriculture as the pinnacle of land use and constitute 'hunting and gathering' as lower in a hierarchy of value. They fail to appreciate not only the sophistication of the latter, but also that Aboriginal people cultivated grasses and grains on drylands (agriculture) and yams and sedges in wetlands (paludiculture).

KEYWORDS

wetland plants, paludiculture, Aboriginal peoples

The yam daisy (*murnong,* Native Dandelion, *Microseris* spp.)[1] was a prominent plant and food source for Aboriginal peoples in south-eastern Australia prior to Europeans invading them in the 1830s and 1840s and in the following years, when its cultivation and use were observed and documented by early explorers, such as Thomas Mitchell, officials, such as George Robinson, and pastoralists, such as Isaac Batey (Atchison and Head 2012; Cahir 2012; Frankel 1982; Gott 1983, 1987, 2008). The yam daisy is a wetland plant and wetlands proliferate in mid-western Victoria. It is an indicator plant species for paludiculture, from the Latin '*palus*' for mire or marsh. Paludiculture is in current usage to refer to the cultivation of the

1 Beth Gott refers to both *Microseris lanceolata* and *M. scapigera.* Gott (1982: 59) classifies *M. scapigera* as a 'dry-land' plant. Gott (2008) later lumps them together and does not distinguish between their dry-land or wetland habitats. Philip Clarke (2013) refers to *M. lanceolata* and later regards *M. scapigera* as the former name for *M. lanceolata* (Clarke 2015: 250, n5). Neville Walsh (2016) taxonomises *M. lanceolata, M. scapigera* and *M. walteri*. I am grateful to an anonymous reviewer for providing these references.

peatlands of England and northern Europe in the past and present and for the future (Milner and Smart 2022; Wichtmann et al. 2016). The history of the use of peatlands in northern Europe has been researched and traced recently by Ruuskanen (2016). I use the term 'paludiculture' more broadly to refer to the cultivation of plants for animal and human use and consumption in all types of wetlands, including bogs, lagoons, marshes and swamps. I define paludiculture as the cultivation of local, native (endemic) plants in wetlands for animal and human use and consumption, including eating and heating. Paludiculture forms the basis for the broader expression of wetland culture in artefacts (canoes, spears, sticks, nets, baskets, houses, household vessels, etc.) and the arts, including storytelling, song, dance, writing, painting, textiles, jewellery and basket-weaving (Giblett 2024).

'Palus' is also incorporated into the common word 'palusplain' where it is used to refer to a seasonally waterlogged, flat wetland. It is in current usage to describe much of the Swan Coastal Plain of south-western Australia, encompassing Perth, 'a city of wetlands', including palusplains.[2] 'Paludal' has been used recently to describe swamp lovers and wetland conservationists as 'paludal heroes', as Ryan and Chen (2020) call them. 'Palustrine' has been used recently by the Queensland Museum (2022: 7) to describe 'primarily vegetated non-channel environments with more than 30% emergent vegetation'. Examples of palustrine wetlands include 'grass, herb and sedge swamp; wet heath swamps (wallum); *Melaleuca* spp. and *Eucalyptus* spp. tree swamps' and other swamps (Queensland Museum 2022: 7). Aboriginal people cultivated many of these wetlands for sustenance in many regions of Queensland in north-eastern Australia, as documented throughout *Wetlands of Queensland* (Queensland Museum 2022).

THE BULKURU SEDGE AND ABORIGINAL PALUDICULTURE IN NORTH-EASTERN AUSTRALIA

An early European shipwreck survivor, James Morrill (2006), observed Aboriginal paludiculture in Queensland, documented it and gained sustenance from it too. In 1846 Morrill was shipwrecked on the coast

2 For further discussion of Perth as a city of wetlands with its palusplains, see Giblett (2013, ch.15).

of Queensland north of the Burdekin River. He lived among the local Aboriginal people for seventeen years before returning to colonial society, writing his account of his sojourn and publishing it in 1864. The coastal area in which Morrill spent much of his sojourn was 'low and swampy in many places' (Morrill 2006: 70). The abundant animal and plant life of the swamps was a reliable food source for the local Aboriginal people. Morrill (2006: 33, 70) learnt how to 'snare ducks, wild turkeys, geese and other wild fowls' 'with snares … placed in the thick grass and reeds in the swamps'. Women not only gathered food in swamps (55) and dug in the earth for roots (55), but also cultivated roots in swamps. He observed women and very young children 'working in the swamps with their mothers, setting roots' (52). The old women made cakes from the roots gathered from swamps (67). This is 'digging-stick farming' and paludiculture.

Land is the site of the clash of cultures, not least with the colonisers over possession and perceptions of lands wet and dry. Morrill (50–51) relates:

> I told them the white men had come to take their land away. They always understood that might, not right, is the law of the world, but they told me to ask the white man to let them have all the ground to the north of Burdekin, and to let them fish on the rivers; also the low grounds, they live on to get their roots – ground which is no good to white people, near the coast and swampy.

Morrill (71) concludes by emphasising that 'the low swampy grounds' were 'no good to anybody but themselves.' Aboriginal people understood that colonising white people viewed swamps as no good to them. The same story was repeated throughout Australia and was part of the cultural baggage colonisers brought with them from western Europe that denigrated and destroyed wetlands.[3]

In the 1980s, J.W. Winter mentioned the same area as Morrill in a chapter on 'The Swamps: A Habitat in Motion' he contributed to an edited collection devoted to the natural history of Queensland (Winter 1983). Winter focuses on swamps as water-bird habitat, rather than as homes for Aboriginal people, though he does acknowledge that swamp plants were a food source for Aboriginal people, albeit in a caption to a photo:

3 For further discussion of western attitudes to wetlands, see Giblett (2021).

> the tubers [of the bulkuru sedge, *Eleocharis dulcis* (water chestnut)][4] are rich in carbohydrates and form the major food supply of both brolgas and magpie geese (and formerly, Aboriginals). Bulkuru is a tall perennial freshwater sedge. It is the most abundant water-plant on the coastal swamps of the Burdekin/Townsville region. (Winter 1983: 180)

He does not describe how bulkuru was cultivated in paludiculture, unlike Morrill. This is Winter's only mention of Aboriginal people.

Referring to previous studies of water-birds in Queensland, Winter highlights the fact that 'the coastal swamps of the Burdekin/Townsville region were identified as amongst the finest wetland habitat for water-birds in north Queensland' (Winter 1983: 148; see also 150 for more detail). This region of Burdekin River and Townsville is precisely where Morrill lived with Aboriginal people for seventeen years. After being shipwrecked in 1846, Morrill in fact landed at the site of present-day Townsville/Cleveland Bay as confirmed in the indication on a map published as a frontispiece to his book (Morrill 2006: vi).

The Queensland Museum, in *Wetlands of Queensland*, concurs recently with the Aboriginal people of the Burdekin/Townsville region that swamps are good and useful, that they have traditional and spiritual significance and that they provide physical sustenance (without acknowledging paludiculture much, or the cultivation of wetlands as such).[5] It also elaborates on Winter's discussion of wetland types and specific wetlands in Queensland, including in the Burdekin/Townsville/Cleveland Bay region and Bowling Green Bay, east of Cleveland Bay (Queensland Museum 2022: 344–49). It also acknowledges and discusses Aboriginal people's sustainable use of wetlands. Aboriginal people in Queensland cultivated the abundant animal and plant life of wetlands for food for many thousands of years in paludiculture. It concurs with Winter that bulkuru is a food source for First Nations' peoples and water-birds (Queensland Museum 2022: 295).

Wetlands of Queensland, published by the Queensland Museum in 2022, is a lavishly illustrated book and weighty tome of over 400 pages that the sets a benchmark for the other state museums in Australia and

4 This edible wetland species is discussed in early ethnobotanical literature using former scientific names; see Roth (1901: 13) and Thozet (1866: 7). I am grateful to an anonymous reviewer for drawing my attention to their work.

5 For further discussion of the sacred and spiritual significance of wetlands for Aboriginal peoples, see Giblett (2020).

should be a source of envy for them. It documents and presents extensively the ecological values of wetland types and selected individual wetlands in five regions of Queensland. It also discusses briefly and periodically the role of these wetland types and individual wetlands in the lives of Traditional Owners/First Nations People. Yet there is no discussion of the people who colonised and destroyed wetlands in Queensland. It is as if the only people in Queensland are Aboriginal peoples. Non-aboriginal people and their role in the colonial, agricultural and urban destruction of wetlands in Queensland, and their conservation, are written out of this account.

The only evidence for this history is aerial photographs of urban areas abutting wetlands (Queensland Museum 2022: 218–19, 221) and of 'canal estates,' or 'modified wetlands' (221) and the brief acknowledgement that

> most of the human population of Southeast Queensland lives on lower floodplains and coastal areas, and consequently these areas are highly modified. Many wetlands in these areas have been cleared, drained or filled. (Queensland Museum 2022, 221)

Or modified into canal estates, in a word, 'canalised'. One wonders when were these wetlands cleared, drained, filled or canalised? Why? By whom? Presumably by 'the human population of Southeast Queensland', though not all members of this population are equally culpable, certainly not Aboriginal or First Nations people or Traditional Owners. Colonial history is largely written out of *Wetlands of Queensland*, including the present when history is in the making. For instance, the Queensland Museum does not mention nor discuss the development proposal to modify the Ramsar-listed wetlands of Toondah Harbour and their environs in Southeast Queensland by constructing even more canal estates. Nor does it is discuss the campaign to save these wetlands from destruction (Readfern 2023).

By contrast with the unnamed colonial wetland drainers, fillers or modifiers, early on *Wetlands of Queensland* states that

> wetland ecosystems are of profound material and cultural importance to First Nations people. Almost all wetland plant and animal species have some form of traditional use – particularly vegetation, crustaceans, fish, reptiles, mammals and waterbirds (especially their eggs) – or are valued for their cultural significance. Wetlands supply medicine and tools for Traditional Owners … Wetlands are also story places and centres for cultural activity … Aboriginal knowledge of

> wetland management provides an important basis for natural resource management, which has evolved over several hundred generation of people living on and managing custodial responsibility for country. (Queensland Museum 2022: 18)

In other words, Aboriginal knowledge of wetlands is reduced to its contribution to the neo-colonial and institutional discourse of 'management'. Aboriginal wetland people are dispossessed from their traditional ways of life gaining sustenance from wetlands unless they can demonstrate 'Native Title' to the National Native Title Tribunal and Federal Court by proving traditional ties of hunting, gathering and foraging, and ceremonial uses, from which colonists have largely dispossessed them. Paludiculture and agriculture do not count as a test of 'Native Title' under the current legislation.

The neo-colonial and institutional discourse of management in *Wetlands of Queensland* persists in discussing the Budjiti people and the wetlands of Currawinya National Park. These 'nationally and internationally renowned wetlands' are part of the Paroo River country, in turn, part of the Murray-Darling Basin (Queensland Museum 2022: 180). These wetlands 'form part of Budjiti cultural landscape' (180). In other words, they also form part of the coloniser's natural landscape. Aboriginal people and colonisers are made to sit either side of the nature/culture divide, with land regarded as cultural by the former and as natural by the latter, that denies the work of the former and their ancestral beings in creating the land and 'managing' it. As the Queensland Museum goes on to state:

> for thousands of years before the colonisation of the Paroo River country, Budjiti peoples sustainably managed their ancestral lands and waters. (Queensland Museum 2022: 180)

Yet more than merely 'managing' ancestral lands and waters for their own sake, or only for their environmental 'sustainability,' these peoples also used sustainably their 'resources' for human sustenance and health:

> of great cultural significance to the Budjiti peoples, the lakes, springs and other wetlands of Currawinya National Park provide an important source of food, medicines and material resources. Budjiti Ancestors built dikinj (camps) by the lakes and made nets to catch waterbirds, including guturu (swan), yuli (wood duck), mingara (black duck) and gultaba (teal duck). They also collected the bird eggs and fished in the water, catching gupiri (black bream), bugili (crayfish) and birriri (turtle). (Queensland Museum 2022: 180)

Budjiti are settlers who built camps and who practiced aquaorniculture and aquaculture, and possibly paludiculture too, as

> These places with the cultural landscape – including birthing and burial places, hunting grounds, sowing and harvesting areas, fish traps, campsites and ceremonial grounds – give shape and form to the stories, traditions and memory of Budjiti peoples, and support the continuity of these cultural practices into the future. (Queensland Museum 2022: 180)

Which species of plant are, or were, sown and harvested is not specified. The cultural practices of aquaorniculture and aquaculture, and possibly paludiculture, in the places in which they are performed also give shape and form to the stories, traditions and memory of Budjiti peoples.

Similarly the Wanjuru-Yidinjii peoples of the Russell River catchment practised aquaorniculture and paludiculture in Eubenangee Swamp before the arrival of the colonisers. In this swamp 'they burnt the grasslands to facilitate the growth of fresh shoots in order to attract wallaby, ducks, geese and other animals' that they would 'hunt and trap' (Queensland Museum 2022: 326). The swamp 'provides a rich hunting and fishing ground within the catchment' that

> revolves around ganyarr [the saltwater or estuarine crocodile] and the wet and dry seasons. Ganyarr permanently reside in Eubenangee but are more active during the wet season when breeding occurs … Wanjuru people share Eubenangee with ganyarr during the relative safety of the dry season. (Queensland Museum 2022: 326)

Ganyarr is the apex scavenger of the swamp that occasionally takes and consumes with regularity a human that ventures into its territory. Saltwater crocodiles have been typecast as monsters, regarded with horror and associated with the uncanny.[6] Jaban, the freshwater eel, resides in the upper catchment of Russell River and is 'the keeper of water' as it 'keeps the water clean.' The Queensland Museum goes on to argue that

> Protecting jaban – the apex predator in the upper reaches of the catchment – means caring for the waterways, which results in healthy aquatic ecosystems for all other species and, in turn, plentiful supply of food for Wanjuru. (Queensland Museum 2022: 326)

6 For further discussion of monstrous crocodiles, horror and the uncanny, see Giblett (2018, ch. 4; 2019a, ch. 2; 2019b, ch. 3).

Healthy land and water mean healthy people; no healthy people without healthy land and water. Human health includes mental and spiritual health.

The Queensland Museum concludes of this swamp that,

> Today, Eubenangee is an ecologically significant palustrine wetland, and one of the last remaining associations of specific ecological communities (vine forest, grassland, sedge and melaleuca paperbark swamp forest) occurring on nutrient-rich basaltic alluvium. (Queensland Museum 2022: 326)

All good reasons for caring for and conserving Eubenangee Swamp.[7]

Aboriginal paludiculture in north-eastern Australia is also expressed in artworks that show appreciation for wetlands as sources of foods and medicines. Such is the case with the paintings of Mavis Ngallametta of the Kugu-Uwanh people, Putch clan, who lived and worked in the Aurukun area of the Gulf of Carpentaria in far north Queensland. This is an important area for wetlands and local Aboriginal people as documented by the Queensland Museum (2022: 351–413). Local Aboriginal people point out that for them 'wetlands mean life' (Queensland Museum 2022: 412–413).

Mavis Ngallametta's traditional and contemporary swamp paintings are exquisite and intimate artworks that embrace both eras. Rather than swamps with their negative connotations, the wetlands they depict are sometimes described as lagoons:

> Mavis Ngallametta / *Little Swamp on the Way to Obun* 2018 / Natural pigments and charcoal with acrylic binder on linen primed in synthetic polymer paint / 271 x 200cm. Accession No: 2018.393 / Collection: Queensland Art Gallery of Modern Art / © the estate of Mavis Ngallametta c/- Martin Browne Contemporary.
>
> Accessed online 13 May 2023: https://collection.qagoma.qld.gov.au/objects/32442

The gallery comments on this painting that:

> A popular site for fishing, Obun is a place where the people of Aurukun, in far north Queensland, go to relax and catch food for their families. The little swamp in the painting is one of the main freshwater lagoons found near the massive saltwater estuary of Archer Bay. (Queensland Art Gallery of Modern Art, ND)

7 For further discussion of Aboriginal peoples and Queensland wetlands, see Giblett (2024, ch. 1).

Mavis said in an artist statement in 2018 that:

> There are plenty of birds there. When it's dry time, you see wallabies in that area, but in the wet time, you see only birds and lily flowers and lots of swamp flowers. There are little swamps everywhere when the wet sets in. (cited by Queensland Art Gallery of Modern Art, ND)

The gallery also comments that this painting is 'one of the most refined of the artist's *pamp* (swamp) works, which developed considerably in style over the last decade of her life.'

A decade before she painted another painting of a swamp:

> Mavis Ngallametta / *Pamp (Swamp)* 2009 / Synthetic polymer paint on linen / 116 x 111cm116 x 111 cm / Accession No: 2015.096 / Collection: Queensland Art Gallery of Modern Art / © the estate of Mavis Ngallametta c/- Martin Browne Contemporary.
>
> Accessed online May 13, 2023: https://collection.qagoma.qld.gov.au/objects/21952

The gallery comments on this painting that this is 'one of the artist's earliest works.' Mavis said in her artist statement that it depicts:

> the big swamp near Aurukun. There are many different coloured waterlilies and plenty of birds at the swamp. People used to go to the swamp and get the roots of the waterlilies for food and medicine. (cited by Queensland Art Gallery of Modern Art, ND)

The gallery comments that:

> Many associate swamps with stagnant water, algae and putrid mud. In contrast, Ngallametta's swamps are picturesque lagoons that ring the community of Aurukun in the post-wet season. In these lagoons, crystal clear fresh water abounds, tainted only by the tea-coloured tannins of the melaleuca trees lining the banks. (Queensland Art Gallery of Modern Art, ND)

The gallery acknowledges swamps' negative associations and lack of pleasing qualities in the minds and for the bodies of many gallery-goers, members of mainstream western culture. The gallery then gives a revisionist reading of Mavis Ngallametta's lagoon paintings as positively picturesque, not pejoratively swampy. The good, crystal clear fresh water of the lagoons is posed against the bad, stagnant water and putrid mud of swamps. Yet lagoons and swamps are both wetlands, and wetlands can have both sorts of water. They should be appreciated for both and not moralised in a Manichean, fundamentalist and triumphalist conflict of good versus evil.

Mavis Ngallametta's paintings take the aerial and close-up view of swamps or lagoons and produce two exquisite and intimate artworks that invite the viewer to wade into the wetland and experience it bodily through the senses of sound, smell, touch and sight. Her paintings portray (they are not landscapes) wetlands in the horizontal plane as exquisite (to use Rebecca Solnit's apposite term). Solnit applies the exquisite to contemporary artworks of female bodies, but it can equally be applied to contemporary artworks of femininised bodies of water, such as swamps and lagoons (Solnit 2003: 205–18).

THE YAM DAISY AND ABORIGINAL PALUDICULTURE IN SOUTH-EASTERN AUSTRALIA

Recent debates about Aboriginal peoples' cultivation of native plants and whether they constitute agriculture apply the European value-laden yardstick of stages of human development, with agriculture as the pinnacle of land use, and constitute 'hunting and gathering' as lower in a hierarchy of value (Clarke 2018a: 71). They fail to appreciate not only the sophistication of the latter, but also Aboriginal peoples' differing uses of fire in their cultivation of native plants both on the drylands and in the wetlands of Australia according to season, vegetation and type of country (as recently brought together brilliantly by Victor Steffensen 2020). Aboriginal people cultivated grasses and grains on drylands (agriculture) and tubers and sedges in wetlands (paludiculture).

This is no less the case with the yam daisy and the wetlands of mid-western Victoria in south-eastern Australia. Philip Coutts, the Victorian government archaeologist in the 1980s, wrote that in mid-western Victoria,

> from the viewpoint of *Aboriginal settlement*, the most significant features of the area are the large numbers of perennial and intermittent lakes, swamps, streams and rivers which attract abundant wildlife and provide favourable environments for aquatic plants. (Coutts 1985: 23; my emphasis).

Mid-western Victoria was already settled by Aboriginal peoples when colonisers came to (re)settle it. For the colonisers to settle the already settled land, and so in fact to *re*settle it, they had to dispossess the original settlers by one means or another, often violent with many massacres.

Coutts goes on to state that of the wildlife and aquatic plants 'special mention needs to be made of eels and the daisy yam', or yam daisy (*murnong,* native dandelion). The yam daisy was one of a number of what Philip Clarke calls 'calendar plants' which 'to Aboriginal people indicate the change of the season' (Clarke 2018c: 274). Drawing on Clarke's work, John Charles Ryan elaborates that calendar plants 'provide – often simultaneously – a time-keeping measure and a source of physical sustenance' (Ryan 2021: 118). The yam daisy is seasonal eating.

Traditionally, botanists might classify the yam daisy as a helophyte, literally 'sun lover', a category of plants that 'rests in water or in soaking soil' with its petals turned towards the sunlight and soaking up solar energy to photosynthesise, though recent botanists would regard it is an example of a plant that can adopt 'an aquatic habitus' (and so perhaps as a hydrophyte, literally 'water lover' with its roots in water) in response to ecological constraints, such as excessive saturation in a rainy season (Ryan 2020: 101–02). Wetland plants, like wetlands themselves, defy and upset taxonomies based on a hard and fast distinction between wet and dry lands. Like wetlands, wetland plants transition between the two. The yam daisy can be classified as a helophyte and a hydrophyte depending on the dryness or wetness of the land and the season. Either way, the yam daisy is a lover (whether of sun and water) which attests to what Ryan (2020: 101) calls 'the affective affinities' between it and its 'paludal habitats'. Affective affinity was also exercised between Aboriginal people and their paludal habitats in mid-western Victoria with their love of country and their seasonal 'habitations', or *wurrns,* of built houses. The yam daisy is 'much more than a food' as Cahir (2012) puts it.

Aboriginal people of mid-western Victoria are paludiphiles, lovers of wetlands and practitioners of paludiculture, the cultivation of wetlands using fire. Australian Aboriginal peoples practiced 'fire-sticking farming' in the wetlands on the fertile plains of mid-western Victoria to cultivate food for themselves, such as the yam daisy (paludiculture), and to cultivate pasture of native grasses, such as kangaroo grass, for grazing mobs of native kangaroos and wallabies (what I have called pasturalism, as distinct from pastoralism, the herding of introduced sheep and cattle on drylands; see Giblett 2023: 25, 67). This material circle and seasonal cycle of sustenance sustained their livelihoods and lives for tens of thousands of years.

An early European encounter with the yam daisy illustrates and affirms its seasonality and relation to water, but not its vital importance as a food source. In the very wet spring of September 1836 Major Mitchell, the Surveyor-General of the colony of New South Wales, travelled into what is now mid-western Victoria and captioned an illustration of a 'yellow flower abundant on the plains of Australia Felix' and saw it is as a sign of reaching 'the good country' (cited by Giblett 2023: 68). No doubt for him this meant fertile and well-watered country good for pastoralism. Mitchell observed that,

> in many places the ground was quite yellow with the flowers of the cichoraceous plant tao whose root, small as it is, constitutes the food of the native women and children. The cattle are very fond of the leaves of this plant and seemed to thrive upon it. (Mitchell 1839; cited by Gott 1983, 12; 1987, 37)

The Murnong was 'one of the major food sources for Victorian Aboriginal people' (Clarke 2018a: 55–56; Cahir and McMaster 2018: 120). Mitchell does not acknowledge that cattle and Aboriginal people were in competition for the same food source.

Mitchell also observed two Aboriginal women and their children

> at work separately on a swampy meadow … They were spread over the field much in the manner in which emus and kangaroos feed on plains, and we observed them digging in the ground for roots. All carried bags. (Mitchell 1839; cited in part by Gott 1983, 9; 1987, 38)

Mitchell equates working Aboriginal people with grazing emus and kangaroos. They are part of the landscape for him. He does not recognise that native animals graze on the plains because of the work of Aboriginal people in managing grasslands. He also relegates Aboriginal people and their work to the wetland of 'a swampy meadow.'

A European encounter five years later with the yam daisy illustrates and affirms its seasonality, relation to water, importance as a food source and use of fire to harvest it. Aboriginal people's use of fire in summer flushed out black swans and in winter made the presence of the yam daisies and their invisible roots visible. In the winter of July 1841 George Robinson, the Protector of Aborigines, observed and described 'Aboriginal (presumably Djabwurrung) women' using fire to harvest the yam daisy by burning 'the grass, the better to see these roots but this burning is a fault charged against them by the squatters' (cited by Cahir and McMaster 2018: 120). For Cahir and McMaster (2018: 120) this

wet season cool burning 'supports the argument that Aboriginal people in Victoria deliberately used fire as an agent of greater yield change for tuberous food plant ecosystems', such as the yam daisy.

This is no longer the case. Philip Clarke relates that, 'although once common, the Yam Daisy has disappeared from many regions through being trampled out by European grazing stock' (Clarke 2018b: 66). Sheep, horses and cattle were indeed the foot soldiers of the European invasion of colonisation led on horseback by explorers and followed up by squatters with the result that, as Clarke (2018c: 274) later puts it, 'the yam daisy … has become locally scarce since the country was transformed into a rural landscape'. More precisely, Aboriginal country was transformed from their agricultural, aquacultural and paludicultural drylands and wetlands with cultivated native plants and animals and managed fire into a European-style pastoral and rural landscape with introduced plants and animals. The irony and now cliché of history is that Aboriginal co-created lands looked like European park lands. Colonists thought they were a gift of God or nature (and not a co-creation of Aboriginal cultures) and so that they were ready and available for transformation into a rural landscape.

Some squatters charged Aboriginal people with the fault of lighting fires because the squatters saw Aboriginal people's use of fire as a dangerous and destructive threat, quite rightly when Aboriginal people used it as an offensive weapon against the squatters (Cahir and McMaster 2018: 124–28). In symmetrical reciprocity, some squatters used fire as an offensive weapon against Aboriginal people such as when they 'deliberately burnt a village of large Aboriginal huts … in a bid to spatially dislocate Aboriginal people from districts which the squatters coveted' (Cahir 2018: 170). Squatters stole land, water and fire and wrested rights to them from Aboriginal people. Squatters arrogated to themselves the position and role of the titan Prometheus in Greek mythology who stole fire from the gods and brought it down to earth.

Similarly fire in Aboriginal mythology originated in the Skyworld, was stolen and brought down to earth. One legend from Lake Condah in the lands of the Gunditjmara people in mid-western Victoria tells how an Aboriginal man 'threw a spear towards the clouds; to the spear a string was attached. The man climbed up with the aid of the string and brought fire to the earth from the sun' (cited by Clarke 2018b: 12–13; 258). This sounds like an ancient antipodean version of Benjamin

Franklin's experiment in the early eighteenth century of attaching a long piece of wire to a kite and confirming that storm clouds carried electricity and that lightning was a heavily charged spark of electricity. The legend from Lake Condah is also an antipodean, or upside down, version of Franklin's experiment as the Aboriginal man went up his string and brought fire down to earth whereas Franklin's string brought fire down to earth where he stayed.

Whereas fire was only a destructive agent for titanic squatters, to be used or feared, fire for Aboriginal people was a sacred trust to be used wisely and productively. It was a delicate and productive instrument that they adroitly and seasonally applied in caring for country that not only maximised the yield of food sources, but also minimised the build-up of fuel loads. The devastating consequences of *not* using Aboriginal fire techniques to do the latter has been seen in Australia recently with disastrous conflagrations and devastating consequences with the loss of human and more-than-human lives, and the destruction of the habitats of both with burnt bush and houses. The cross-cultural struggle between Aboriginal people and colonists over fire, land and water continues to this day, with some hopeful recent signs of dialogue and willingness on the part of non-Aboriginal people to learn from Aboriginal people about their traditional use of fire in caring for country (Steffensen 2020).

The land these squatters stole from Aboriginal people was the product of Aboriginal people's use of fire to create the park-like landscape of a pleasing pastoral prospect the squatters coveted, found and re-settled. One squatter in the 1840s in Victoria (then the Port Phillip District of the colony of New South Wales) observed 'fire-stick farming' when he wrote that 'the fire stick' is 'an [Aboriginal] instrument … which must be credited with results it would be difficult to over-estimate' (Curr 1883: 188). By and large squatters did not estimate it at all, except as a threat, or recognise, or acknowledge, Aboriginal people's work in co-creating the land with creator beings, or their ownership of the land, or their settlement of it, or their improvements, or their civilisations. All these aspects of Aboriginal people and their place were beneath estimation and not worthy of esteem, let alone respect and acknowledgement – legal, cultural, or any other way.

The wetlands of mid-western Victoria had, as Harry Lourandos (1987: 298) describes them, 'a high capacity for annual regeneration. Their resources included both local and migratory species: fish (especially

eels), birds, eggs and a range of edible plants. The location of wetlands also allowed access to a diverse range of neighbouring environments, such as the fertile open plains and forests. Plants were staple items of diet'. Wetland plants were not only foraged and collected, but also cultivated; eels and fish were not only hooked and gathered, but also trapped; and birds were not only hunted, but also netted. Cultivation, trapping and netting required artifice and labour with the tending of plants, the building of traps and the weaving of nets. Lourandos (1987: 293) calls the Aboriginal peoples of mid-western Victoria 'swamp managers' who 'practised intensive gathering, hunting and fishing economies that included the management and manipulation of plants, animals and fish. They established semipermanent base camps and their ceremonial and political life involved large social networks'. Lake Connewarren would also have been a case in point as 'a favourite swamp and camping place', as Ian Clark (1990: caption to plate 14, 198) puts it, for the Girai wurrung (see Giblett 2023: ch. 5). The Girai wurrung were a wetlands people.

Coutts (1985: 23, 63 n2) concludes that in mid-western Victoria its

> wetlands were potentially [*sic*] rich and reliable sources of food for the Aborigines and were the focus of much economic activity during … the period immediately prior to the European invasion, *circa* 1830 CE.

This period dates back about 2,000 years and is usually described by archaeologists as the period of 'intensification' of nomadic hunting and gathering (see Coutts 1985: 62–63; Lourandos 1987), rather than as a shift to the construction of settlements and the cultivation of wetlands in paludiculture.

No greater evidence for the abundance of wetlands as food sources for Aboriginal people is the number of oven mounds, or *myrnongs,* constructed around them dating back 5,000 years (Coutts 1985: 31–38). Phillip Chauncy in the 1870s sketched several oven mounds at 'the outlet of Lake Connewarren, about five miles south-west from Mortlake' in mid-western Victoria in the lands of the Girai wurrung peoples. Chauncy (1878: 233) noted that these *myrnongs* 'must be of great antiquity' and that 'the adjacent lagoon abounds with large eels.' The Reverend Peter McPherson (1884–85: 56–57) in a classic article of early Australian archaeology wrote that 'the large oven-mounds ... are numerous about Mortlake'. He observed that 'the necessity for water accounts at once for so many oven mounds being situated near creeks,

rivers, lagoons, and lakes [which] abound with water-fowl, fish, and eels'.

Recent evidence gathered in mid-western Victoria in southern Australia in the lands of the Gunditjmara people in and around Lake Condah from the past 5,000 years also indicates the construction of stone houses (architecture), the engineering of stone fish and eel traps (aquaculture) and the cultivation of reed beds (paludiculture) to attract waterbirds to hunt and gather their eggs (aquaorniculture, from the Latin '*aqua*' for water and the Greek '*orni*' for bird). These practices demonstrate Aboriginal farming of rich sources of food. Paludiculture also provided and produced materials for weaving nets and baskets for catching and carrying fish, eels, birds and eggs.[8]

These practices are also the basis and indicators of Aboriginal civilisation as they involved 'making improvements', to use John Stuart Mill's definition (cited by Giblett 2023: 25). Aboriginal people also demonstrated ownership of the land as they 'mixed their labour with nature' to use John Locke's definition (cited by Giblett 2023: 26). Applying these definitions of civilization and land ownership to Aboriginal peoples demolishes the doctrine of *terra nullius*, meaning 'nobody's land', and so land legally uninhabited. It was applied most famously to Australia by Captain James Cook who could then claim and proclaim British royal sovereignty with impunity. It denies the work of Aboriginal hunter-gatherers, nomads, architects of stone houses, engineers of aquaculture, pyrotechnicians of the bush, cultivators of grasslands, graziers of pasturalism and farmers of paludiculture and aquaorniculture. In all these practices they mixed their labour with nature, demonstrated their ownership and inhabitation of the land, expressed their civilisation in it and proclaimed their sovereignty over it. Australia 'always was, always will be' Aboriginal country.

The Gunditjmara people of Lake Condah in mid-western Victoria constructed a system of stone channels that not only trapped fish and eels in aquaculture, but also cultivated water plants in the practice of paludiculture to provide sustenance (rather than merely 'subsistence'). These wetlands were traditionally a rich source of animal and plant foods (Gunditjmara People with Wettenhall 2010: 7, 13–16, 67). This site is

8 For further discussion of Aboriginal peoples and mid–western Victorian wetlands, see Giblett (2023, chs 3 and 5).

called 'Budj Bim', 'the world's oldest and largest aquaculture system' (Langton 2021, 65–66). It is now a World Heritage site (AAP 2019). More than intensive hunters, gatherers, fishers and foragers, and more than merely managers and manipulators of plants, animals and fish, the Gunditjmara people of south-eastern Australia were designers and builders of eel and fish traps, or 'engineers of aquaculture' (Gunditjmara People with Wettenhall 2010: 16–22), architects of stone houses and cultivators of wetland plants (Gunditjmara People with Wettenhall 2010: 7, 13–16, 67), or practitioners of paludiculture in their civilisation, as were other Aboriginal people in north-eastern Australia. Aboriginal paludiculture in Australia should be valued as highly as colonial agriculture and pastoralism, if not more so. It is much more suited to, and sustainable in, many areas of Australia.

The Gunditjamra stone houses have been dated to 6,700 years old, older than Stonehenge. Coincidently this is also roughly the period of the seventh and sixth millennia BCE in which the rich alluvium of Mesopotamia between the two rivers of the Tigris and Euphrates was what James C. Scott (2017: 47, 127) calls 'a … wetland paradise' where marshlanders practiced 'an exuberant diversity of livelihoods'. He argues that 'the earliest large fixed settlements sprang up in wetlands' (Scott 2017: 47) in the 'Fertile Crescent' of Mesopotamia. Drawing on Jennifer Pournelle's (2003) work on Mesopotamian marshlands, Scott goes on to relate that these settlements 'relied overwhelmingly on wetland resources … for their subsistence' (Scott 2017: 47). Or more precisely, they relied overwhelmingly on wetland resources for their sustenance as these wetlands were traditionally a rich source of animal and plant foods as Scott (2017: 47–57, 127–28) goes on to discuss. As the marsh Arabs regulated the flows of water and cultivated water plants in wetlands, they were not only hunters, gatherers and foragers (as Scott calls the Mesopotamian marshlanders), but also paludiculturalists.

Pournelle (2003: 219) chooses to focus on

> one feature of the Iraqi wetland terrain – the ubiquitous reed – that, even in the face of overwhelming evidence of its cultural and social importance through time has remained largely invisible to those who could not or did not recognize the real significance of wetlands or the (economic, social, or cultural) value of 'non-agricultural' products or communities.

Reeds are important as a cultural and social resource produced by their cultivation in the marshes and to the productive economy of paludiculture. As Pournelle (2003: 219, 240) maintains,

> reeds were themselves at all times a valuable resource; an ecological component of the agro-pastoral[-paludal] system that have contributed significantly to rural surplus generation in the service of urban populations … In all of [the distinct zones of the wetlands of the southern delta] the predominant activity is reed-cutting for construction, fodder, fuel, basketry and reed matting produced for barter or sale.

The use of reeds plays a central and vital role in the wetland productive economy and as the foundation for urban settlements and cities discussed by Pournellle.[9]

As with their north-eastern Australian counterparts and Mavis Ngallametta's paintings, Aboriginal paludiculture is expressed in artworks that show appreciation for the wetlands of south-eastern Australia. Patricia Clarke retells her father Banjo's story of the Rainbow Serpent of the Hopkins River in a book of that title (Clarke 2008) and in her father's book *Wisdom Man* (Clarke with Chance 2003: 179–80). She also portrays the serpent in her painting of the 'Map of the Western District (Banjo Clarke's Country)' reproduced inside the front cover of *Wisdom Man* (Clarke with Chance 2003).

The Rainbow Serpent's head is placed in the Telegraph Hills near the town of Ararat and its tail in the estuary near the regional city of Warrnambool on the south coast of Victoria. Rather than being crescent-shaped, the Hopkins River is 'S'-shaped, with the head of the serpent as the head of the river in the hills and its cloaca is its estuary on the coast. Rather than a fertile crescent, the watery volcanic plain between the mountains, the river and the sea is a 'Fertile Serpent'. The circles nestled in the curves of the serpent in her painting map camps dotted around kindred wetlands with oven mounds. The lines linking these places map the 'song-lines,' storylines and dreaming tracks between them. This map is a portrait of his country; it is not a landscape to view and master from a distance; it is land to live in, own and know intimately. It does not freeze a moment in time, unlike cadastral maps; it tells a story of a place and its creation.

9 For further discussion of the marsh Arabs and Pournelle's work, see Giblett (2024, ch. 2).

Colonial and industrial paludiculture is another, vexed question in eastern-Australia. Industrial rice-growers in the Murray-Darling Basin proclaim on their roadside fence signs that 'you can't eat a wetland'. In a swift rejoinder, Emily O'Gorman (2021: 5) relates how 'many Aboriginal people will tell you [that] you can eat a wetland by cultivating and harvesting plants in them, hunting animals such as duck, and catching fish'. Flooded rice paddies are, as O'Gorman (2021: 16, 100, 105, 118) points out on several occasions, 'a kind of wetland' anyway and you can eat them. Industrial and Aboriginal paludiculture should work together with sustainable allocations of water for all living beings and livelihoods. Long live wetlands and their plants!

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Companion Plant Reading: Translating Vegetal Voices

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ABSTRACT

Combining Donna Haraway's call to acknowledge non-human significant others in her *Companion Species Manifesto* with the 'biocentric form of literary criticism'[1] advocated by critical plant studies, this essay uses the agricultural practice of companion planting as a Framework for reading beyond the canon of anglicised world literature. I analyse three short stories – Sofie Isager Ahl's 'Naboplanter' ('Companion Plants', 2018), Can Xue's '鸡仔的心愿' ('Chick's Heart's Desire', 2020) and Audrey R. Hollis' 'Seedlings' (2018) – that translate between the botanical and the human realms and use vegetal voices to challenge gendered social conventions, linguistic preconceptions and lingering anthropocentrism. By planting together texts in Chinese, Danish and English intermingled with the idiom of plants, I propose messy, multimodal and multilingual translation as a fundamental figuration in our pursuit of a planetary approach to comparative literature.

KEYWORDS

Critical plant studies, queer, translation, posthuman feminism, companion planting

When we understand these styles, we can make the plant of literary composition grow, roots, leaves, and all, in the garden of literature.

–Liu Xie. *The Literary Mind and the Carving of Dragons,* translated by Vincent Yu-chung Shih.

ESSY TRANSLATION AND PLANETARY LITERATURE

In their aim to move beyond anthropocentrism and pursue a more planetary approach to comparative literature,[2] contemporary scholars have looked to ecology and companion species for inspiration. Writer and literary scholar Wu Mingyi 吳明益 describes the development of nature writing in Taiwan

1 Gagliano, Ryan and Vieira, 'Introduction', p. xi.

2 For conceptualisation of planetary comparativism and planetary world literature, see Elias and Moraru (eds), *The Planetary Turn*; and Nuttall, 'World Literature as Planetary Literature'.

and elsewhere as a movement away from backgrounding or othering the natural environment and towards a biocentric (生態中心) form of narrative where 'other living organisms (生物) are all seen as human companions (夥伴) in evolutionary history'.[3] Following this trend, I am inspired by the agricultural practice of companion planting to read together three short stories that translate between the botanical and the human realms and use vegetal voices to challenge gendered social conventions, linguistic preconceptions and persistent human biases. By planting together texts in Chinese, Danish and English intermingled with the idiom of plants, I propose messy, multimodal and multilingual translation as a fundamental figuration in our pursuit of a planetary approach to comparative literature.

Reiterating philosopher Rosi Braidotti's call to understand the subject as 'a transversal entity encompassing the human, our genetic neighbours the animals and the earth as a whole',[4] translation scholar Michael Cronin argues that such a 'transversal subjectivity obviously demands translation if the relatedness is to be anything other than simple contiguity'.[5] While Braidotti mentions humans among other animals, I should like to look a little further than our immediate 'genetic neighbours' and focus on the vegetal components of transversal subjectivity. Although plant morphology and ways of life differ from how we animals look and function, our DNA is made up of the same basic building blocks (adenine (A), cytosine (C), guanine (G), or thymine (T)), albeit differently ordered and proportioned, and the evolutionary paths of various plants and animals are deeply entangled. Still, understanding and engaging with such radically different types of being is not without challenges, and this is where translation as a mode of thought can help. Cronin goes on to 'stress the (in)humanity of translation, its capacity as a form of thought to engage with questions of meaning, representation and transformation across lines of radical difference between the human and the non-human'.[6] Indeed, a 'human' is itself a porous category as the modern human – *Homo sapiens*, the most widespread species of primate on the planet– is just one type of hominin (albeit the only surviving one)

3 Wu, *Taiwan ziran shuxie de tansuo 1980–2002*, p. 365. My translation.

4 Braidotti, *The Posthuman*, p. 82.

5 Cronin, 'The (in)humanity of translation', p. 197.

6 Ibid.

and still carries genes from extinct hominins (notably from *H. neanderthalensis*) thanks to extensive interbreeding in our collective past.[7]

If we think of translation as a form of engagement across such 'lines of radical difference', it becomes a useful framework for analysing how texts in human languages give voice to plant characters in a way that helps keep the interspecies and the interlingual in focus. Firstly, translation underlines the *practice* of reading – the subjective and situated context of any reading, including the lingering anthropocentrism and linguistic limitations that need to be acknowledged and challenged at every turn. Secondly, a translational focus highlights how the way we think about plants is shaped by the languages we think in. Analysing and comparing texts in Danish, Chinese and English, I include translations of important terms and titles in all three languages to emphasise this fact. Finally, translation affords a mode of writing with plants that acknowledges plant agency as well as the fact that the plants are not representing themselves directly, but are mediated by human perceptions and languages.

To structure this cross-species, cross-language comparison, I use the metaphor of companion planting. Companion planting (naboplantning, 同伴种植) is the practice of growing plants of different species in close proximity, so that they might benefit from the environmental adaptations of their neighbours. This has been practised by humans for millennia across the globe, and one of the oldest known combinations still in use today is the 'three sisters': sweet corn, bean and gourd.[8] In this matrix, the bean takes advantage of the sturdy cornstalks to grow quicker and higher, the big leaves of the gourd shade the ground and keep it moist, while the beans fix nitrogen in the soil by a microbe-mediated process that makes the otherwise strongly bound chemical element available as a nutrient for all three plant species. Together, these 'ecosystem services'[9] are more varied and effective than those provided within a monoculture.

I couple the agricultural notion of companion planting with the feminist idea of companion species. As conceptualised by feminist

7 Britannica, 'Hominin'.

8 Landon, 'The "how" of the Three Sisters'.

9 Amoabeng, Johnson and Gurr, 'Natural enemy enhancement and botanical insecticide source', p. 13.

scholar Donna Haraway, companion species 'must include such organic beings as rice, bees, tulips and intestinal flora, all of whom make life for humans what it is – and vice versa'.[10] It is a way of rethinking humanity as an entangled species rather than an exceptional one and recognising that '[b]eings do not preexist their relatings'.[11] This fundamental entanglement of relatings can help us explore not only what it means to be human but what it means to be a species or indeed an individual. The boundaries of the individual person become more dynamic when we realise that the oxygen we breathe and much of the food that fuels and builds our very bodies is produced inside vegetal bodies and can only become truly part of the human structure with the aid of gut bacteria helping us digest it. As biologists Scott F. Gilbert, Jan Sapp and Alfred I. Tauber so neatly put it, 'neither humans, nor any other organism, can be regarded as individuals by anatomical criteria'.[12] The human body itself can usefully be seen as an ecological superstructure: a habitat for as well as a participant in companion species relatings.

The framework of companion planting is not a new methodology but rather a device to make certain aspects of thematic comparative readings explicit. The texts I plant together are not meant to be representative of any language or national literature – they are individual stories that, like the gourd or the bean, help one another grow in the reading and bring their own linguistic, cultural and historical contexts to the field of comparative literature. The framework underlines that, as with companion planting, these texts are brought together artificially in order to speak to the relevant theme. By using translation as a guiding practice and metaphor, the interaction between species, texts and languages is understood as an ongoing process and negotiation. On the one hand, it underscores an imbalance of power in that, despite engaging with multiple species, the human bias persists in the dominance of human narrators, and despite reading multiple languages, the language of analysis is English. On the other hand, by always situating the human or the Anglophone perspective as something that has been translated, it opens these powerful positions to reinterpretation. Though companion planting may appear to be a human exploitation of plant behaviour, nature writer Michael

10 Haraway, *The Companion Species Manifesto*, p. 15.

11 Ibid., p. 6.

12 Gilbert, Sapp and Tauber, 'A symbiotic view of life', p. 327.

Pollan argues that, throughout our coevolution, plants have likewise lured, induced and refined their animal counterparts to pollinate, protect and even care for them;[13] and literary scholar Joela Jacobs has termed vegetal ways of shaping human culture phytopoetics.[14]

The notion that human beings can be trained by vegetal agency is precisely the point of departure for Sofie Isager Ahl's 'Naboplanter' ('Companion Plants', 2018). Here, plant characters teach the story's human narrator[15] how to care for them through tactile forms of communication. In the second story, Can Xue's "鸡仔的心愿' ('Chick's Heart's Desire', 2020), the zisu plant protagonist establishes a form of sensory communication with the human narrator through its powerful minty scent. In both instances, the sensory forms of plant-human communication are then translated into human languages and into a larger ecological context. In the final story, Audrey R. Hollis' 'Seedlings', the human narrator slowly grows more and more cactus-like as her body becomes the ground for a radical companion planting that stimulates alternative sexualities and forms of reproduction. Although narrated from human perspectives, the vine, zisu and cactus are literary characters with the agency to shape both the narrative and the form of narration. Indeed, these are stories *with*, rather than *about*, plants, to use the distinction Frederike Middelhoff and Arnika Peselmann make in their introduction to vegetal narrative cultures. Each text adds its own take on how to translate plant-human companionship in ways that highlight interspecies communication and care.

TRAINED BY VINES

Sofie Isager Ahl's 'Naboplanter' (同伴植物, 'Companion Plants', 2018) describes the human protagonist's sojourn in a vineyard, learning how to care for grapevines, the story's vegetal protagonists, through a series of short vignettes. These explore the relationship and similarities between the human and plant protagonists in terms of their corporeality and the ecological circuits centred around water, air and sun in which they participate.

13 Pollan, *The Botany of Desire*, p. xv.

14 Jacobs, 'These lusting, incestuous, perverse creatures', p. 603.

15 For study of plant narrators, see Erin James, 'What the plant says'.

From early in the narrative, a bodily relationship between plant and human is explored and similarities invoked: 'White fingers, fragile against the branches, cold (Hvide fingre, skrøbelige mod grenene, kolde).'[16] Despite their role of caring for the vines, the hands are described as the more fragile of the two, and it remains unclear whether the final adjective 'cold' refers to fingers or branches. The sentence hints at a relationship of interdependence as well a likeness that suggests reciprocity and mutuality. Rather than the plant acting as the non-human Other, as is often the case in modern and contemporary fiction,[17] the grapevine and the human are portrayed as analogous beings with finger-branches engaging their shared space. The local winegrower continues this parallel between bodies and recalls the Dionysian association of wine with blood popularised by Christianity when she states that '[t]he plant juice is like the blood of the vine (plantesaften er som vinstokkens blod)'.[18]

Humans and vines share more than an outward likeness in bodily forms and fluids: they are both beings that depend on, and consist of, water. As feminist scholar Astrid Neimanis proposes, humanity's watery origins and existence can be understood as a fundamental and continuous entanglement with other species and with the planet itself:

> Water irrigates us, sustains us, comprises the bulk of our soupy flesh … its inclusions are intentionally abundant; counted here are not only humans and other animals, plants, fungi, protoctists, but also geological and meteorological bodies such as oceans, rivers, aquifers, subterranean streams, clouds, storms, swamps and soils – all dripping or tidal or damp. With this list, the idea of what a body is becomes productively, posthumanly, torqued.[19]

A similar view of water as the medium through which all life is connected is explored in 'Naboplanter' when the protagonist makes her supplication '[m]ay all the water we evaporate, condense and fall on us again (må alt det vand, vi fordamper, fortættes og falde over os igen)'.[20]

16 Ahl, 'Naboplanter', p. 12. All quotes from this short story are in my own translation with the original quote given afterwards.

17 See Keetley and Tenga (eds), *Plant Horror*; Møller-Olsen, 'Growing together'; Meeker and Szabari, *Radical Botany*.

18 Ahl, 'Naboplanter', pp. 9–10. This parallel between plant (especially arboreal) and human bodies is a trope in many contemporary ecocritical texts along with plants as sensory extensions of the self – see Møller-Olsen, 'Trees keep time'.

19 Neimanis, *Bodies of Water*, p. 27.

20 Ahl, 'Naboplanter', p. 25.

Water is something we borrow and give back, something we share and something that connects us bodily with other species, other parts of the Earth and other eras of planetary history (as well as other parts of the solar system, since at least part of Earth's water arrived via ice-covered asteroids or comets).[21]

Neimanis calls this the 'hydrocommons of wet relations' and, in Ahl's work, water does indeed integrate the human and plant protagonists with their environment. It is the first of three fundamental plant-human connections that Ahl draws our attention to through her use of the first-person plural: 'This wonderful rain that covers the land in a whisper, makes us silent, receptive (Denne vidunderlig regn, der hviskende dækker landet, gør os tavse, modtagelige)'.[22] The rain feeds the land and all the beings that live on it (including grapevines and humans), muddying diverse species into a grateful *us*.

In 'Naboplanter,' the process of pruning and tying in the vines brings changes not only to the plant but to the protagonist as well: 'I become quicker and quicker in my ability to tie in the vines … Four buds fall as a result of my clumsy movements (Jeg bliver hurtigere og hurtigere til at binde vinstokkene op … Fire knopper falder af i min kluntede bevægelse)'.[23] Through this drastic form of tactile communication, the plant teaches her how to care for it by letting its buds drop off when she is not doing it right. Over time, the protagonist's body learns how. This form of communication might not be completely intentional, but it is still effective, and it benefits both species in their companion efforts. Reminiscent of Pollan's argument that plants have successfully induced various animals such as bees and humans to help spread their genes,[24] Ahl suggests that, not only do the vines play just as important a role in creating a good growing environment as the people do, but in some instances it seems that humans are merely the vines' servants to be instructed and trained: 'one has to view the plants as information, they are signs, they can be read, they tell you how the soil fares (man må se planterne som information, de er tegn, de kan læses, de fortæller,

21 For a study of inter-planetary hydrocommons in contemporary fiction, see Møller-Olsen, 'Space Oceans'.

22 Ahl, 'Naboplanter', p. 28.

23 Ahl, 'Naboplanter', pp. 13–14.

24 Pollan, *The Botany of Desire*, p. xv.

hvordan jorden har det)'.[25] The grapevines become mediators between the people and the land, extending human perception deeper into the soil and providing valuable information about ecological conditions. Recalling philosopher Luce Irigaray's dictum that the plant's 'way of growing is the word of its existence',[26] the medium of this tactile message is the materiality of the plant itself.

Air is the second interconnection that Ahl points out in her examination of plants as humanity's ultimate companion species. She acknowledges our debt to the earliest land plants who, 350 million years ago, created a new balance in the atmosphere with lower CO_2 levels and set the scene for the first terrestrial animals[27] when she writes that '[t]he forest is one big exhalation (skoven er en stor udånding)'.[28] The exhalation of our companion plants provides the oxygen we need for our inhalation, and we exhale carbon dioxide for them in a fundamental and intimate life-giving exchange.

The third shared basis of existence is the conversion and recycling of energy that begins with sunlight. Plants photosynthesise light into fibres that humans eat and digest, after which human bodies produce (and ultimately become) food for the plants in a cycle of metabolic energy conversion often labelled 'burning' (forbrænding, 三焦): 'The sun is blinding. We are burning (Solen er blændende. Vi brænder)',[29] Ahl writes. Described here in a more negative vocabulary, the sun is also a source of danger to both plants and people, a danger that they can protect one another from, as humans use tall plants as well as fabric from plant fibres to create shade for themselves and their crops or, from a vegetal perspective, sun-tolerant plants shade and protect other nearby and useful species. As critical plant scholars Natania Meeker and Antónia Szabari remind us, plants 'oblige us to come to terms with our own vulnerability in the face of processes of ecological, social, political and intellectual change, and, often, with our profound, complex dependence on the very forms of life that we are least inclined (or

25 Ahl, 'Naboplanter', p. 11.
26 Irigaray, 'What the vegetal world says to us', p. 130.
27 Gagliano, Ryan and Vieira, 'Introduction', p. vii.
28 Ahl, 'Naboplanter', p. 61.
29 Ahl, 'Naboplanter', p. 71.

simply unable) to acknowledge'.[30] In Ahl's 'Naboplanter', companion plants are described as chemically interdependent on, and fundamentally similar to, their human collaborators. They function as sensory extensions that provide information about the environment, and they complement human efforts as fellow distributers in the hydrocommons of wet relations. Finally, plants are recognised as the providers of essential resources for human survival including water, air and nutritional energy. Living and working closely with plants not only increases productivity, but educates the human body and reminds us of a subtle yet fundamental interdependence that underlies our very existence. In the specific context of the vineyard, it also raises the question of who has domesticated whom.

PLANT NAMES SMELL LIKE HOME

In Can Xue's 残雪 short story '鸡仔的心愿' ('Chick's Heart's Desire', Kylles ønskedrøm, 2020), the human narrator Chick (鸡仔) learns about himself and his role in the larger ecosystem from a zisu or perilla plant, much as Ahl's protagonist is trained by grapevines. Where interspecies communication is tactile in 'Naboplanter', here the main sense involved is smell and it is the zisu's minty scent that is its main contribution to the companion planting as it discourages predation from most animals but appeals to the human palate, inducing humans to care for it, provide it with water and eliminate vegetal competition. The fact that its human companions value zisu for its smell is apparent in its many popular names. Besides 紫苏 pronounced *zisu* in standardised Mandarin, the plant protagonist of the story has many other names including 桂荏 (guiren), 白苏 (baisu) and 赤苏 (chisu) with a plethora of pronunciations in various Chinese languages and dialects. English names include purple perilla, purple shiso, Chinese basil, beefsteak plant, perilla mint and, in Danish, it is variously known as kinesisk/japansk/koreansk bladmynte (Chinese/Japanese/Korean leaf-mint) as well as *shiso* – the transliterated Japanese name. While the plant's official botanical name *Perilla frutescens* is useful for global identification, it embodies a history of empire entwined with the history of plant hunters that 'discovered'

30 Meeker and Szabari, *Radical Botany*, p. 2.

plants across the world, brought them to Europe, and named them using their own writing system.[31] Translation scholar Darryl Sterk comments on the dilemma of the translator forced to navigate between the global imperialist legacy of botanical nomenclature, on the one hand, and local linguistic inequalities and silenced pluralities of everyday language, on the other, when it comes to translating bionyms. He concludes that there are no easy solutions for how to represent the natural world in writing and that 'naming the creature at all is in some sense imperialistic (for what name would the butterflies themselves use?)'.[32] As for what a plant would call itself, we would probably need a new definition of language relying on other, multiple sensory modes besides sound,[33] for, as Irigaray has pointed out, '[a] plant says what it is, and its way of growing is the word of its existence'.[34] A pioneer in the philosophical discussion of plant languages, Michael Marder clarifies that 'what we are dealing with is not the classical relation between a signifier – that is, the word *plant*, or the symbolic structure it participates in – and the corresponding signified, prelinguistic concept, but an interchange between two languages: the biosemiotics of vegetal life and human signification. Whether we are mindful of this or not, whatever we know about plants is due to a successful translation from the former to the latter, a translation that never exhausts or depletes but, on the contrary, enriches what it translates'.[35] Considering how to translate plant names and experiences into human languages clearly provides interesting insights, not only about vegetal ways of life and human preconceptions of these, but

31 For an overview of scholarship on botany and empire, see Batsaki, Cahalan and Tchikine, 'Introduction'.

32 Sterk, 'An ecotranslation manifesto', p. 131.

33 For more on literary sensory studies in relation to plants, see Møller-Olsen, 'The nose: Flora nostalgia'.

34 Irigaray, 'What the vegetal world says to us', p. 130. Prue Gibson and Catriona Sandilands argue that, rather than saying what they are, 'plants perform in their own interests, as part of a multispecies network of performativity in which, for example, showiness, smelliness, and eventfulness combine in specific ways to bring about desired ends such as pollination. ('Introduction: Plant performance', p. 2).

35 Marder, 'To hear plants speak', p. 109.

also about the process of translation as a creative collaboration that conveys, reproduces and *co-produces* meaning.[36]

The understanding that a plant 'says what it is' also highlights something else that the botanical name obscures, namely that plants develop in relationship with their surroundings and so, in a sense, say not only what but *where* they are. For example, the leaves of a purple perilla will be greener and less purple if grown in shady conditions, although its human name does not change. While Marder describes translation as a basic condition of plant-human interaction and something that *enriches*, Sterk highlights the risks of *impoverishing* the diversity of bionyms that reflect daily plant-human entanglements across the globe. He councils that in order to avoid 'mass bionym extinction … translators should do their part to maintain terminological diversity by balancing the local and the global, the common and the scientific in translations of bionyms'.[37] Although there probably is no single, simple pathway to achieving this, awareness of the multiple bionyms of a plant in both source and target languages is a beginning. Another radical strategy advocated by literary scholar Emily Apter might prove useful in this context as well. Invoking an ecological vocabulary, she suggests that '*not* translating becomes a means of recognizing and negotiating singularities as part of geographies of aesthetic and cultural difference', countering the field of 'world literature's endorsement of translatability as a sign of global currency', which risks imperilling 'efforts to read against the grain of global monoculture'.[38] Not translating a plant's name would help create awareness of that plant's situatedness in a particular soil and a particular language. In the case of Chinese that would mean not only transliterating the official Mandarin pronunciation but perhaps choosing the dialect of the story's locale, which might not have a sanctioned transliteration system or might be beyond the linguistic catalogue of the translator.[39] In the following, I will refer to

36 Isabel Kranz, for example, pays specific attention to how 'flowers emerge as meaningful signs that are claimed in the service of both science and sentimentality' ('The language of flowers in popular culture and botany', p. 195).

37 Sterk, 'An ecotranslation manifesto', p. 128.

38 Apter, 'Untranslatability and the geopolitics of reading', p. 195.

39 This is the case in this essay, where all Chinese characters are transliterated using *pinyin* – the official transcript of standardised Mandarin in the PRC and the system with which I am most familiar.

Can Xue's plant protagonist as *zisu* and ask the reader to keep in mind all the plurality of names behind the name, the plant-human relationships they signify, as well as the possibility that the plant may recognise itself and its kin by a completely different kind of biochemical code.

In Can Xue's story, the protagonist, Chick, visits Mama Yuan and her grandson Nigu in the countryside. Here, he discovers an affinity for the minty smelling herb zisu in a budding companionship that corresponds to other interspecies relationships in the story, most importantly that between the local wolves and Nigu's family. Nigu originally came to the village to look after his grandmother in her old age, at least, as he explains,

> 'that's how I saw it to begin with. Later, I discovered that this is how I want to live. Still later I discovered that no one needs looking after. While walking in the woods, Grandma found those wolves. And really… well, those wolves were only around because of Grandma.' Nigu's words made me think of eels and zisu ('来的时候，我妈说你是为了保护奶奶才住在唐村的。　起先我是这样想的。后来我发现这才是我要过的日子。再后来又发现没人需要保护。奶奶在林子里走来走去，寻找那些狼。其实啊，那些狼也是因为奶奶才呆在附近的。'　泥古的话让我想起了黄鳝和紫苏).[40]

This brief quote epitomises the idea of certain species always being found together and supposedly benefitting from it – a kind of naturally occurring companion species. Earlier in the story we have been told that 'zisu grow in places with eels (紫苏正是同黄鳝长在一处的)'. When we hear that the wolves are 'only there because of Grandma' and that their relationship reminds Chick of the one between zisu and eels, it suggests that this is more than two species enjoying the same environment, it is two species that need one another's company in order to thrive – companion species. Indeed, wolves and humans have such a long record of antagonism, companionship and domestication both historically and mythologically,[41] that legends, fairy tales and fictions of wolf-human encounters abound. In a contemporary Chinese language context, the role of wolves in the ecological imaginary became a source of heated debate after Jiang Rong's (姜戎) *Wolf Totem* (狼图腾) came out in 2004. The novel, which casts Mongols as a strong, 'wolf-like'

40 Can Xue, '鸡仔的心愿'. All quotes from this short story are in my translation of the unpaginated, online publication.

41 See Pierotti and Fogg, *The First Domestication*.

and environmentally conscious people that the 'sheep-like' and domesticated Han-Chinese should learn from, became hugely popular and influential, but was also heavily criticised for the above racialised dichotomy, its fascist tendencies and for simply inventing the legends and practices it portrayed.[42] Despite such criticisms, the novel and its film version have succeeded in coding wolves as symbols of ecological awareness in the popular imaginary.[43]

Throughout the story, Nigu come to represent an intimate and intuitive connection to nature that allows him to sense what his companion species are doing at the other end of the forest:

> He simply answered that since wolves were very warm-hearted animals, he could sense their leaving through changes in the flow of qi/air. His words made me so envious – how nice it would be if I could master this skill of his! But as I didn't understand anything and could only let him drag me dizzy and faint in our forwards scuttle – how could I pay proper attention to the qi/air flow. 他就回答说，狼是热情的动物，他能从气流的变化上感觉到它们要离开。他的话让我特别羡慕他——我要是能掌握他这种本事该有多好！可是我什么都不懂，只能被他拖着昏头昏脑地往前窜，哪里还顾得上去观察气流.

Through his mastery of air currents (气流), Nigu is attuned to the natural environment in a way that Chick is not. The character 气 (qi) that is used, means both air and life energy and so it is up to the reader to interpret Nigu's skill as an outcome of either environmental immersion or spiritual intonement, or a combination of the two.

Despite its somewhat naïve presentation of an undefined but benevolent realm of nature that human civilisation has moved away from, the short story presents the reader with an interesting take on cross-species translation and communication. As Marder points out, 'The assumption that to have a language is to be able to speak is both erroneous and unethical'.[44] The story's description of Nigu's extended sensory awareness, a form of communication that goes beyond the visual and the linguistic, seems characteristic of several of the plant narratives studied here. Just as Nigu is able to communicate with the wolves without language but via the wind, so Chick discovers a sensory connection with the zisu and decides to adopt it as his companion plant:

42 Visser, *Questioning Borders*, p. 25.

43 See Hong, 'Further questions about the ecological themes of wolf totem'.

44 Marder, 'To hear plants speak', p. 113.

> There are many kinds of vegetables in Mama Yuan's vegetable garden, but my favourite among them is the fragrant zisu. Zisu are modest plants, you don't have to give them any special care, as long as it rains a little, they will grow and spread their unusual scent which leads to wild dreams and flights of fancy. (圆妈妈的菜园里的菜品种很多，其中我最喜欢的是香菜紫苏。紫苏很贱，用不着特殊照顾它们，下点雨就长开了，散发着特殊的、让人想入非非的异香).

In a subtle metafictional gesture, the imagination-enhancing properties of zisu are evoked, suggesting that it is partly responsible for the fiction we are reading. The other, non-human companion species of the zisu – the eel – also provides interesting connotations: as an amphibian, it is able to travel between the realms of water and dry land, just as the zisu allows Chick to move from reality and into the world of 'dreams and flights of fancy.'

In companion planting terms, consuming zisu is beneficial to the human body (as a flavouring and medicinal herb) and, in return, the humans take care of the plant and provide it with a protected and well-watered growing space in the vegetable garden. Later in the story, it is the scent of zisu that immediately revives and comforts Chick when he is lost in the woods:

> then I saw an enormous patch of zisu. I bent down, grabbed a handful of leaves, and held them to my nose. Ah, what an intoxicating fragrance! I regained my strength and my mind filled with thoughts of eel soup. (于是我看见了大片大片的紫苏。我弯下腰抓了一把叶子，放到鼻子前。啊，真是醉人的香气！我恢复了元气，满脑海里都是黄鳝汤).

The zisu communicates homeliness: the promise of a full belly and a safe place. Unlike the other plants that grow in the forest and signify wilderness for Chick, the smell of zisu conjures the home they share.

The ecological lessons that Chick has learned from Nigu and Mama Yuan's relationship with the wolves are embodied by the zisu and communicated through its scent:

> Afterwards I would often cry out in my sleep: 'Zisu! Zisu….' and be awoken by my own noise. I would touch the zisu and bring the crushed leaves to my nose for a good sniff. Such an intoxicating scent! 我后来常常在梦里喊着：' 紫苏！紫苏……' 然后我就被自己吵醒了。我摸到了紫苏，将叶子揉碎放在鼻子前用力嗅。多么醉人的香气！.

The smell of the zisu becomes a synecdoche for the interspecies connections exemplified in the story, as well as their importance for

the wellbeing of humans. For Chick, it is his companion plant, the zisu, that ensures he remains in some way part of a greater ecology and as '[p]lants communicate above ground through volatile organic chemicals',[45] it is the scent of the plant rather than its name that conveys this connection. Although it remains a story written from a human perspective where 'across the spectrum of symbolic transcriptions and translations, the literal plant, the plant itself, remains untranslatable',[46] a companion plant reading of Can Xue's narrative denaturalises human languages by means of poly-bionymic confusion. Its cross-sensory translation from the biochemical to the textual opens up a space for thinking creatively about our engagement with the vegetal world through and beyond translation.

PRICKLY POSTHUMAN SEX

Smelling a zisu leaf may inspire creativity but, in the case of flowers, as Joela Jacobs reminds us, it is always also a sexual encounter.[47] The sexual aspect of angiosperms has led to widespread associations between flowering plants and romantic and erotic love in both poetry and science.[48] Of particular interest here, is the literary use of plant reproduction to explore queer sexualities, since, as Jacobs notes, 'the mix of asexual and sexual reproduction in plants recasts human sexuality as a range of options'.[49] In her short story 'Seedlings' (苗, Spirer 2018), Audrey R. Hollis takes advantage of the ingrained association between flowers and (queer) sexualities to explore what a more plant-like romantic relationship might entail both physically and emotionally. Pamela, the story's protagonist, is unhappy in her relationship and decides to take drastic measures:

> Pamela swallowed a cactus and grew spines. They shot up through her pores, inches long and thick and stiff … She enjoyed it, that first day, feeling them push up through her skin. Every time her skin was shoved upward and held taut,

45 Hall, *Plants as Persons*, pp. 153–54.
46 Marder, 'To hear plants speak', p. 109.
47 Jacobs, 'These lusting, incestuous, perverse creatures', p. 602.
48 Kranz, 'The language of flowers in popular culture and botany', pp. 204–05.
49 Jacobs, 'These lusting, incestuous, perverse creatures', p. 613.

> every time it stretched, and broke, the pinpoint head of a new spine sticking through, she knew she had made the right choice.[50]

By eating a cactus, Pamela herself becomes more cactus-like with all the challenges and promises her new body carries.

Pamela's body becomes the soil for a radical cactus-human companion planting. Though published as speculative fiction, this idea of a shared body is more apt than strange. As Gilbert et al. remind us, the branch of life we belong to has from the first been the result of interspecies mingling as 'eukaryotic cells are themselves the result of several symbiosis' so that 'what counts as "self" is dynamic and context-dependent'.[51] As such, Pamela's posthuman cross-species body is just a more explicit and recognisable visualisation of the kind of fundamental comingling of species that is part of our evolutionary history and still takes place inside the bodies that we share with trillions of other microorganisms.[52]

At first, the transformation seems promising to Pamela as it protects her from unwanted intrusions from the outside world: 'She loved, so deeply, being an untouchable thing'. Although being untouchable brings its own challenges in terms of intimacy, it also forces Pamela and her girlfriend Lydia to be more creative and attentive during love-making. As visual arts scholars Robin A. McDonald and Dan Vena have found, exploring human sexuality through vegetal being can help us focus on 'expanding given possibilities of what constitutes physical or erotic pleasures' rather than 'streamlining more amorphous kinds of desire into the penile-vaginal sex act served to make "sex" align with capitalist values not only of productivity, but also of reproductivity'.[53] This is not only a question of confronting heterosexual norms, it also forces the couple to reevaluate and reinvent their own sexual habits: 'The sex was certainly more creative. Lydia would crack her open now, stroke the moist, water-bearing seams that made up her insides, mov-

50 Hollis, 'Seedlings'. All quotes from this short story are from the unpaginated, online publication.

51 Gilbert, Sapp and Tauber, 'A symbiotic view of life', p. 333.

52 Results from the Human Microbiome Project suggest that hundreds of different kinds of species live in and on our bodies, including bacteria, archaea, fungi, protozoans, and viruses, and that the cells of the microbiota vastly outnumber human cells. (Rogers, 'Human microbiome').

53 McDonald and Vena, 'Monstrous relationalities', p. 205.

ing with exquisite care. Pamela would wear gloves'. This is sex without a manual, where gendered expectations are put aside, and interaction is determined not by the cultural coding of sexual organs but by Pamela's thorns that complicate as well as promote intimacy with the new need to be especially considerate and careful. It also highlights the duality of pain and pleasure in sexual intercourse, as Lydia needs to navigate Pamela's prickly outside to caress her softer insides.

The diverse forms of plant sexuality lead to the story's second theme, which is alternative modes of reproduction and Pamela's desire to persuade Lydia to make the same vegetal change she has and for them to have a child. Lydia is unwilling, but thanks to her new cactus form, Pamela is able to proceed without her and produce small 'lumps' on her own. These are clones of herself –a capacity for vegetal and asexual reproduction common with succulents – and stand in contrast to the seedlings of the title that are result of sexual fertilisation (although many plants can self-pollinate, thus complicating the binary between intersexual and asexual reproduction with a third autosexual option). Pamela's companion plant not only helps her to explore new sexual possibilities but to create new life as well:

> She studied it, becoming more certain. It lay completely still in the palm of her hand, tiny and prickly and stubbornly alive. Hard and round and genderless, with tiny spines that looked as soft as cuticles, ready to sprout and grow. Pamela set it on the ground by the foot of the bench and walked away from it, feeling freed.

The tiny cactus-human clone intensifies some of the existential ambiguity involved in all acts of reproduction – it is both her and not her, neither the original nor a copy. This is underlined when Pamela can't decide whether her 'lump' is a part of her body that has been discarded or a growth of something new: "'I'm shedding," Pamela said. "Or budding"'.

The cactus child can be seen as a *translation* of Pamela, it could not have existed without her, yet here it is, continuing to live independent of her. In their work on queering translation, scholars continue to challenge the notion of authenticity in the source text and argue that '[o]n a larger theoretical level, notions of translation as a performative practise, as an imitation with at best tenuous links to the idea of an original, as an indefinite deferral of meaning, but also as a site of othering,

hegemony and subalterity, mark it out as always already queer'.[54] Like the little cactus, the process of translation can be seen as 'prickly and stubbornly alive', full of both limitations and possibilities beyond habitual conformity, making it '[h]ard and round and genderless … ready to sprout and grow' beyond the control of the source text or the author. Imagining a translated text as a child or cactus clone also highlights the inherent hybridity of the source, underlining how it is itself a product, a child, of other, older texts and thoughts and languages that comprise the microbiome of culture.

Pamela's experiments with alternative sexualities and modes of reproduction do not go uncensored, however. It turns out that society has deemed it illicit: 'Lydia stroked one with the very tip of her finger, a movement so gentle it made Pamela feel squishy for the first time in weeks. "It's illegal, isn't it? To make more cacti?"'. Vegetal reproduction continues to be viewed as a danger, in the ways that made classical plant horror so potent as it was 'often characterized by radical overgrowth, hyper-reproduction and/or a disturbing craving to ensnare and consume, monstrous plants disrupt already uneasy hierarchies of subjecthood by rearing their petals, tendrils, or leafy heads in unexpected forms and places'.[55] Not only is Pamela's new body subject to laws that prohibit her from multiplying, her drought-tolerant corpus grows increasingly estranged from the moistness of humanity: 'Pamela blinked, watching Lydia's fingers curl around her fork. In the light, her skin looked almost soggy with the surfeit of moisture. She'd been seeing it more and more around the city, this impossible, obscene excess'. As Dawn Keetley has argued, it is often their capacity for excessive growth that make fictional monster plants horrifying, not least because we recognise ourselves in it.[56] Indeed if any one species stands for overproduction and invasive population growth, it must be humanity, and the narrator's complaint that human cities suffer from an 'obscene excess' of moisture speaks to this. Where water is the great *connector* in Ahl's 'Naboplanter' – the hydrocommons that plants, humans and other Earthlings share – in 'Seedlings' water is what sets Pamela apart: 'She couldn't take more than a sip or two of water at a time anymore – anything more made

54 Epstein and Gillett. 'Introduction', p. 1.

55 McDonald and Vena, 'Monstrous relationalities', p. 204.

56 Keetley, 'Six theses on plant horror', pp. 16-19.

her feel like she was drowning'. Pamela is no longer able to function in the social and ecological sphere she used to inhabit. She feels that the world, including her girlfriend, is becoming wetter at the same time as she becomes less and less moisture tolerant.

Certain sections of 'Seedlings' can be read as allegories of artificial insemination surrounded by societal regulations and expectations as well as of the radical bodily changes that pregnancy involves. Indeed, Pamela's 'cactification' reads like a medical process:

> It wasn't difficult to get the permit, if you were of age and could pass a psychology test. The latter was made easier by a cottage industry of notaries, lawyers and quasi-medical professionals. Sign away your life in waivers and visit one of the small stores – which were mandated to be a certain distance from the schools, just in case – full of various cactus clippings from lab-grown plants.

But, like a growing plant, the story exceeds and evolves beyond the confines of allegory to interrogate human relationships, existential loneliness and social expectations of bodies in general. Through experiments with her new plant-body Pamela grows apart from her world as well as her partner, who ends up leaving her: 'Pamela let her mind wander, not thinking of the child she'd wanted, with dark eyes and ferocious spines, not thinking of the wife she'd wanted, strong and prickly, but instead thinking of the lumps on her back, the spaces inside of her'. Pamela and Lydia's visions for their future diverge more and more, until they end up as two different species in need of two different habitats, one dry, one moist. Rather than raising a child together, half soft human, half spiny cactus, Pamela is left with just her own 'lumps'.

Pamela's prickly companion plant in 'Seedlings' provides her with protection from the world, it offers creative sexualities and alternative means of reproduction. Although these experiments come at the price of losing Lydia, from the reader's extradiegetic perspective, the companion planting of cactus and human together in one protagonist affords a non-binary model for thinking about (textual) authenticity and the (more than human) individual. By embracing the materiality, and confronting the symbolism, of literary plants, Hollis shows that the vegetal characters can bring both radical alterity *and* intimate association to the ecosystem of contemporary literature.

COMPANION PLANT READING

In her posthuman take on anthropology, Anna Lowenhaupt Tsing reiterates anthropologist Marilyn Strathern's emphasis that

> [c]omparisons risk erecting artificial boundaries and suggest internal homogeneity in order to facilitate comparison with other 'units'. Even outside explicit comparisons, the tools we use are comparative and so rather than shy away from comparisons, we should engage in a form of analysis that 'exposes the specificity of one's tools as well as one's objects'.[57]

By companion planting texts in different languages including nonverbal plant communication, translation is exposed as a main tool in the comparative endeavour and one that accentuates the diversity of possible perspectives both within and across units of comparison. Just as the stories translate between plant being and human languages, my translations between Chinese, Danish and English underline the diversity of experiences that lives, not only between languages, but within every single language as we translate our individual thoughts, feelings and perceptions into words that can be shared.

In a scaled down version of Jacobs' phytopoetics, where the vegetal world shapes human cultures, the literary plant characters shape human narratives in ways that require an extended sensory understanding of communication that includes touch and smell as well as sight and sound. Such multisensory forms of communication necessitate a more bodily and time-consuming form of translation whereby human narrators immerse themselves in their companion plant's environment and give voice to the plant protagonists through their own corporeal experiences living with and learning from plants.

In Ahl's 'Naboplanter', the vines use a tactile form of communication to train the human narrator to care for them in ways that will benefit both companion species. Through a focus on shared circuits of water, air and solar energy, vines and humans are translated into analogous components in a larger ecological commons. Adding a metafictional dimension, Can Xue's short story suggests that it owes its existence to the inspirational qualities of the zisu's intoxicating fragrance. It could be read as the human narrator's translation of that scent into narrative

57 Tsing, 'Strathern beyond the human', p. 227.

form, coupled with the ecological and creative insights it communicates to him. After translating from touch and smell in the other texts, Hollis provides a more holistic perspective where the human protagonist translates her entire body into the material language of plants so as to be able to reproduce and 'say what she is'. Here, it is the human body itself that is viewed as an ecosystem in which several species are planted together.

By reading with plants and humans as literary companions, a transversal perspective arises from human narrators that are either trained, inspired, or even transformed by, plant protagonists. Anthropocentrism is not eliminated but recast in a context where it represents just one perspective among many, translated into one human language among many. Read together, these three stories serve to remind us of the linguistic and corporeal situatedness of their human authors and readers, as well as the plants that trained and inspired them. But they also emphasise that their very position is the product of continued co-evolution and cross-species communication.

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Botanical Awareness and Adolescent Maturation in Siri Pettersen's *Odin's Child*

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ABSTRACT

This article supports the thesis that (eco)fantasy novels written for young adult people are nowadays crucial to give the next generation an ecological expertise to face environmental challenges. It is therefore important to consider what perceptions of nature are actually conveyed through the reading of these literary works, thus involving a pure dissemination of knowledge about flora. The novel *Odin's Child* (*Odinsbarn*, 2013) by Siri Pettersen is considered here, giving voice to arboreal and botanical perspectives and basing the analysis on phytocriticism and the recent developments in ecocriticism. *Odin's Child* supports the belief that a deep knowledge about botanical elements can be shared through the practice of embodiment and through an active interaction with the plant world, especially at a young age; for this reason, the importance of liminality and the role of contemporary literature in the human maturation process are underlined here.
Plants play multiple sustainable roles in our life and for the survival of the planet: they are sources of medical treatments, and absorbers of carbon dioxide and other air pollutants (Jones and MacLeod 2022). Yet, it is only recently that scholars from the humanities have started analysing the role of plants in fiction, inaugurating the so-called 'plant-turn'. The aim of this study is to highlight the importance of plants and botanical knowledge in young people's understanding of and engagement with the natural world via young adult literature. This article's approach will underscore the pedagogical value of ecofantasy as a suitable genre in creating empathy and a positive attunement towards flora in young readers. The central part of this paper, informed by the work of John C. Ryan (2018) and his phytocritical method, provides an analysis of the botanical elements of the econovel *Odin's Child*, with an emphasis on its affective potential. A final reflection will involve new materialistic visions – such as the concepts of hybridisation (Curry 2013) and transcorporeality (Alaimo 2010) – in considering the liminal space of human/non-human and the girl/woman maturation process through which the novel develops.

KEYWORDS

arboreal and botanical knowledge, ecocriticism, ecofantasy, embodiment, human maturation process

ECOCRITICISM AND CRITICAL PLANT STUDIES

In the last decade, ecocriticism has redirected the analysis of plants, attentive to the representation of the plant world – forests, trees, bushes, flowers, herbs, wild shrubs, garden plants – in cultural works, including literary works. Ecocriticism has examined the figurative powers of the flora present in literature

through symbols, metaphors, tropes, linguistic means, and narrative devices. In his introduction to *Plants and Literature: Essays in Critical Plant Studies* (2013), Randy Laist argues that it is 'impossible to overstate the significance of plants to human life, and yet this simple fact is easily overlooked, taken for granted, or, perhaps, actively repressed in the semantic texture of urban, technological consciousness' (2013: 10). For Laist, the common rhetoric tends to conceptualise botanical life as a category of things that are alive like us, but that live in a completely different way, located outside our capacity for empathy, omnipresent but unknown, seductive but unresponsive (2013: 14). For ecocritics, imagination signifies the author's ability to mediate the plant world in an evocative or persuasive way, a quality that emerges between text and referent during the mediation process (Ryan 2018: 10).

As Lydia Kokkola claims, the use of critical plant studies within literary analyses 'draws attention to works which concretise human dependence on plants' (2017: 274). In his volume *Plants in Contemporary Poetry: Ecocriticism and the Botanical Imagination* (2018), John Charles Ryan aims to reverse the trend denoted as plant blindness: 'an inclination to overlook flora, to undervalue its global biocultural significance, or to render it appropriable matter in service to human desire' (2018: 6). From this point of view, the plant world in the text is analysed with the aim of identifying its potentially negative yield through human aesthetic inclinations (plants as pretty objects and picturesque scenarios), appropriation (such as consumables or throwaway materials) and figuration (as symbols, tropes and linguistic devices rather than presences, corporeality and sensory exchanges). By receiving various sensory impressions from plants, our mind enters a perceptive sphere unifying plants, nature, imagination and knowledge. The sphere of imagination, beyond its normative limits, also highlights their transience; in this context, the imaginative faculty acts as an intermediate zone on the threshold of rational thought, objective knowledge, and the specific corporeality of plants (2018: 8–9). Ryan names this mode botanical criticism, or phytocriticism, which attributes greater vital capacity to plants. By recognising plants as cognitive entities capable of behaving, deciding, feeling, learning and remembering, phytocriticism evaluates the extent to which plant dynamism figures in cultural productions, including environmental texts in which botanical life is an active presence (2018: 11). Catalysing a transformation of language, a phytocritic recognises

the totality of the botanical sphere, such as the environment, ecology, landscape and, of course, plants.

In addition to this, Ryan evaluates the ethical orientation of these texts and the degree to which the narratives suggest the moral consideration of plants (2018: 14–15). His phytocritical method points to a vegetal dialectic recognising states of difference and commonality between plants and non-plants. This allows critics to think of plants in terms of their complex phenomenological experiences as individuals and communities, with their own subjectivity within an ecosystem. Through literature, the dialectic of the strangeness and familiarity of plants attracts the reader, who becomes involved in the lives of plants and will have to confront both their radical otherness and their profound identity (2018: 17). Ryan's work is divided into thematic chapters dedicated to different topics such as soul, body, empathy, humour, memory, time, death, hope (and love). Ryan emphasises poetry in developing a phytocritical approach, but his subdivision based on the sensory perception of the plant world also represents a good starting point for the exploration of flora and our empathic perception in contemporary (eco)fantasy novels. It is indeed of particular interest to analyse the role of plants and their perspectives emerging in recent literary productions for children and young adults. Considering the important role that plants play in our lives, this article underlines the potential of floral and arboreal depictions in supporting the liminal maturation process – as the quality of ambiguity or disorientation that occurs in the middle stage between childhood and the passage to a new and more adult way of structuring their identity, time, or community (Van Gennep 2019) – in the imaginative dimension of the young reader.

ODIN'S CHILD AND MEANINGFUL HOPE

Odin's Child (2021), as translated into English from the original Norwegian title *Odinsbarn* (2013), is a contemporary young adult novel by Siri Pettersen. In this (eco)fantasy story, the protagonist Hirka, a fifteen-year-old girl, has no ambitions, lives in a small, isolated house on top of a hill, and conducts a poor existence away from everyone. She is an expert healer, and often uses her skills and knowledge of healing herbs, learned from her father, to create natural medicines, to cure

people or to sell herbs in the market. This activity puts her in close contact with the surrounding environment to collect herbs and wild plants. All she wants is to be free and live like everyone else, but this doesn't seem possible because she is an 'Odin's Child', the only human being to live in the kingdom of Ym. The typical magical and fantastic element gives the main characters the opportunity to develop some inner psychological processes typical of adolescent maturation, such as disorientation, fear and anxiety towards the switch to adulthood.

In ecofantasy novels, as in works of fantasy, we find a secondary world that is a separate realm where society revolves around magic or where magical creatures are present. It can be a unique world by itself or one that is connected to a primary (non-)magical world through a portal. Typically, in this secondary magical world, young protagonists act freely, as they are no longer at the mercy of the daily limits imposed by adults and, in this way, they take control of their own lives (Teigland 2014: 104).[1] Fantasy novels, therefore, give their protagonists the opportunity to bring order to inner chaos, usually generated by conflicting feelings about the world and the society in which they live. The inner crisis reflects the need for a personal change and for a departure from the everyday environment, a dimension in which the protagonist is at a disadvantage and, often, finds him- or herself with no way out of an apparently hopeless situation. The secondary world – the fantasy universe that finally offers the adolescent the possibility to take an active part and to remedy his or her ineptitude – is of crucial importance for change: in this new setting, the young protagonist finally finds friendship and love, and pursues freedom and self-determination (Teigland 2014: 105).

Recently, many Nordic econovels have used natural motifs as central to the maturation process of their young protagonists: as well as Siri Pettersen's bestselling fantasy trilogy *The Raven Rings* (2013–2015) – of which *Odin's Child* is the first chapter – novels *Hulder* (2013) and *Forbannet* ('Damnable', 2015) by Tonje Torne have gained more and more popularity. In particular, the novel *Odin's Child* is part of that ecofantasy literature dealing with ethical and philosophical themes (Goga 2018b: 77). By ecofantasy, I specifically refer to a subsection of the fantasy genre that emphasises our co-dependence on the natural world without

1 All translations from critical essays originally written in Norwegian and Italian are mine.

relying on dichotomies or divisions between human society and the environment. Indeed, these narratives are marked by harmony between human civilisation and plant nature. The ethical question underlying the plot in *Odin's Child* is the relationship existing between different life forms and between the protagonist Hirka and the natural elements; there is a subtle balance in Hirka's life and much depends on the presence of plants and animals and the comfort they give her. Specifically, this book challenges the notion of the primacy of the human being, or what in a broader perspective can be defined as an anthropocentric attitude towards nature (Goga 2018b: 77), and at the same time provides optimistic and empathetic counter-visions of sustainable futures. In *Odin's Child*, Hirka is the only human being in a world with no other humans: the protagonist's attitude towards different forms of life and the fact that the interaction with them increases her self-determination and her wisdom in facing difficulties lead her to establish what Goga calls 'an ecocentric attitude within literature' (*ibid.*).

In her official website, Pettersen writes that her books are inspired by Nordic culture, climate and mythology, but that they are not limited to this: the worlds she describes are unique, complex and complete, with their own rules and settings. Furthermore, Pettersen assumes that in an unreal world, of which no one has heard before, readers have a privileged position, given that, from the very beginning of the reading, they have no prejudices. It is precisely in the hands of young readers that Pettersen puts her trust for a different future:

> They haven't given up yet. Young people haven't been moulded yet and haven't succumbed to the patterns of adults. Young people refuse to accept 'that's just how it is' as a reason. They are alert, sharp, they notice when things aren't working, and they burn with desire to fix it. They have utopian mindsets and believe in all the best fairy tales.[2]

The writer entrusts them and the (eco)fantasy narrative with the most important mission in this historical moment:

> Many people think fantasy is about getting away, about pure escapism. And of course, that's part of it, but the genre also has a far more important role. Fantasy is often criticised for being unrealistic since it is about saving the world. But for the very first time, saving the world is a realistic problem. Sadly. I think people

2 https://www.siripettersen.com/about-siri

> swallow fantasy because it teaches them to tackle big problems. It gives them motivation and inspiration to attack the big issues we are facing.[3]

From this point of view, Pettersen's words match exactly the definition and scopes of young adult fiction in a broader sense, that of playing an important pedagogical role in adolescent maturation. In particular, the more recent ecofiction incorporating human–plant relations suggests that the thinking underlying critical plant studies is becoming more accessible to young readers (Kokkola 2017: 277). Furthermore, by foregrounding the activeness and liveliness of the vegetal world, ecofantasy authors 'provide a new way of promoting changes in human behaviour in relation to the lived world' (276), to eventually lead to more desirable pro-environmental behaviours. Ecofantasy allows writers to portray a relationship in which botanical awareness and human identity merge, creating a hybrid. This aspect will be strongly underlined and supported during this analysis. In fact, while the roles of imagination and freedom in fantasy have been traditionally taken into account by literary critics, little has been done on hybridisation. Yet hybridity is an important factor in the liminal phase of adolescent maturation. Hybridity gives Hirka a space to grow and the novel itself might give young female readers the space to muse on their own identities and growth.

BOTANICAL ELEMENTS AND 'PLANTINESS' IN *ODIN'S CHILD*

In 1990, Drew Leder argued that readers of literary fiction have the potential to develop skills and learn explicit rules that can be transferred through the example of characters to pervade individuals' own corporeality. Head et al. (2014) refer to the term 'plantiness', or the unique and multiple ways in which plants do things, as opposite to the plant blindness denoted first by James Wandersee and Elizabeth Schussler (1999; 2001) and then by Ryan. Making the agency of plants explicit through literary fiction 'could therefore guide readers through pro-environmental behaviour, greater empathy and curiosity about plants and ecological stewardship' (Jones and MacLeod 2022). Of particular interest in *Odin's Child* is the narrator's attitude in constantly highlighting the need for a

3 https://www.siripettersen.com/faq

floral and arboreal awareness by giving the main characters a special and detailed botanical knowledge.

The ways in which botanical encounters are represented in the text underline the importance of plants and people's relationships with them. Hirka and her father Thorrald are healers who help people with ailments and diseases. The hut in which they live teems with illegal herbs and teas that sometimes need to be hidden in case of a rare visit by the authorities. Over time, Thorrald lost the use of his legs and this doesn't allow him to travel far; in the present of the narration, Hirka is in contact with the vegetal world as she collects the herbs necessary to produce their medicines. She has been practising and deepening these botanical ideas since the age of seven. One of the situations in which Hirka shows her knowledge as a healer is when she arrives in Ravnhov and, while she is looking for a place to get a hot meal, a fight breaks out in the inn where she is staying. A man, Villir, finds himself with a knife planted in his foot and Hirka helps him stop the bleeding. But the knowledge of medicinal herbs also guarantees Hirka a place to live when she is forced to flee her home after her father's death. Hirka helps Lindri, the owner of the tea house, and in return she gets a bed to sleep on.

The herbs, plants and spices known to us that are mentioned, albeit less frequently than the supernatural ones, are heather, mint and exotic spices, and tea. The heather mentioned twice in the novel has a death valence reflecting Ryan's elaboration of the idea (2018: 190–213). The same goes for dogwood, a fantastic powerful poison. These two plants are bound in a context of desperation: Thorrald commits suicide by taking dogwood, to facilitate Hirka's escape, given that the paralysis of his legs would prevent them from moving quickly. Dogwood has a metallic and nauseating smell that heralds something ominous to Hirka, even before she discovers what has happened. The heather, on the other hand, is the first landscape element that Hirka notices and, almost involuntarily, chooses it to express her desperation: 'Hirka dropped to her knees in the middle of the heather' (Pettersen 2021: 171). With regard to magical herbs and plants, Gianna Chiesa Isnardi points out that their growth from the subsoil expresses the activity of the vegetative forces of the earth (1991: 540). The image of grass is therefore one of the first manifestations of the existence of the world. Chiesa Isnardi states:

> In the grass itself the energies of the earth are collected and made available; for this reason, herbs and plants generally have therapeutic and medicinal

> properties. The concept of 'medical science' understood as magical possession of the secret power of each plant shines through where we speak of the runes of the branches, the knowledge of which allows wounds to be healed. The allusion to the runes contains a reference to divine wisdom which teaches us to recognize the healing powers of herbs and makes healing a superior gift. Herbs therefore contain the vivifying, fruitful and healing power of the god (*ibid.*).

In *Odin's Child*, teas, infusions and spices are linked to Hirka's memory, hope and soul. In fact, the hut in which Hirka spends her childhood is described as follows: 'Everywhere you looked, there was tea. Herbs hanging from the ceiling to dry, and then the smell of mint and exotic spices. Almost too exotic if the voices were true' (58). Olfaction brings back memories of home in Hirka's mind when she is in Mannfalla, in the tearoom. Furthermore, she empathises with the landscape of Bromfjell when negotiating with the Council members: 'You understand ... I feel good here. Peace is restored. It is a good place to live. Here the tea grows on the mountains' (608). Hirka is respected by all for her healing abilities, even if the other villagers keep her and Thorrald at bay. Having this connection to the plant world, Hirka and Thorrald can still survive, albeit with a poor lifestyle, on the edge of the community. This kind of balance occurs because they have the knowledge and skills to use nature's resources in a different way.

Although this is a fantasy world, in Ym there are only trees known to us: firs, pines, birches, maples and oaks. Trees are a constant and strongly empathetic presence, insofar as they interact, sympathise, admonish and know events: they are, thus, personified, and omniscient. They know more than people and are guardians and silent observers. There is a strong connection between Hirka's own story and the forest. At the beginning of the novel, Hirka is attempting to rescue Vetle, a child astride a felled fir tree over a precipice; to approach him, she has to advance a few steps and, from the first lines, the author describes the state of decomposition of the tree through a personification: 'below her, the trunk moaned' (9). Hirka tries to communicate mentally with the tree, in the hope that it would listen to her: 'She began to formulate kind thoughts towards it, as if to prevent it from shaking her off, making her fall into that gaping wound that was the rocky abyss below'. Later the same day, Hirka climbs to the top of another tree, a birch, which she does anytime she wants to escape from someone, including the reproaches of her father who, to get her down, one day goes as far

as cutting down the tree. On that occasion Hirka, sitting at the top of the trunk, feels safe and feels that she has time to reflect, comparing herself to a leaf: 'She could wait. Up there she was nothing but a leaf in the wind' (37). Powerless in the face of what is happening, and facing the risk of falling from the tree, she uses the misfortune of the tree to speak of her own misfortune: 'The trunk of the tree vibrated against her body, and she nearly fell. She held on tightly and looked down in disbelief. Her father raised his hatchet, ready to strike another blow. Was he completely insane? ... After only four blows she felt the trunk give way ... It was just an inauspicious day for trees!" (37–38). This action highlights Hirka's morality and respect for trees, as if there were a higher law that prescribed that a consequence follows every action: 'He had even cut down a birch! One never knocks down a tree without something changing…' (39). After the argument with her father, Hirka feels even smaller among the grandeur of the forest: 'She became smaller and smaller, among the old maples' (101).

Pine needles are another important element characterising Hirka's liminal passage to a more adult stage, as if she had suddenly left her childhood and the whims of a young girl behind to be more mature in her choices and reflections. Hirka awakens in Blindból, near a warrior camp north of the kingdom. When Hirka opens her eyes, even though she doesn't know where she is, she feels different, changed, and wiser. In fact, in that very place, she will soon make the decision to leave Ym forever. When she wakes up, the sensations she feels following this inner maturation are almost unreal: 'Hirka floated above the ground. In a dream in which she was dead. Or just born. Green conifers and white kissels were sailing around her' (589). As Nina Goga points out, children's and young adults' literature is full of examples in which the protagonists of these stories are surrounded by plants and trees or, at least, spend time among them, and this often leads to a maturation, growth or development of the protagonist, or what can be defined as the process of human maturation (2018a: 354). Goga states,

> To reason with the visual and verbal representations of plants, trees, gardens and forests, it is to become aware of and problematize the forest as a training arena. But it is also a question of testing the representations of plants and plant hierarchies as a metaphor for emotional registers and social structures (2018a: 356).

In this specific case, this is not just a comparison; Hirka establishes communication with trees, and recognises, in some of their signals, warnings, as if trees know better. Trees accompany Hirka's physical and inner journey as she becomes increasingly aware and farsighted in her travels. One day, in an attempt to get over her father's suicide, she goes against the rules by donating a piece of her father's body to the crows; it was believed that only a deceased person of noble blood could be donated to ravens because, in this way, the individual would be made immortal. This was not possible for Thorrald, but Hirka is inflexible: 'She went out into the cold night. Trees rustled her admonishingly, but Hirka had made up her mind. She knew what she had to do' (Pettersen 2021: 174). Soon after, however, she is seized by a sense of immorality regarding her actions and it seems to her that this also affects the surrounding landscape, which avoids her: 'Now the wind blows harder. The trees shook their leaves as she passed and leaned to one side to avoid her. She was a defiler of corpses! Hirka smiled bitterly. What else could they expect from her? She was just a human…' (176).

A peculiarity of *Odin's Child* is that human visual perception is sensitive to (bio)diversity, so much so that even relationships and communication between people change according to encounters with the arboreal landscape. In the chapter where Hirka and another woman, Ramoja, travel to Mannfalla in a cart, the conversations between the two change according to their movement through the landscape. First, the forest is the right place for confidence and secrets: 'On the cart, the conversations were influenced by the landscape. While they were crossing the fir forest, Ramoja took courage and spoke of secrets, of which nobody was supposed to know' (303); then, as they descend from Hrafnfjelli mountain, the fir forest thins out, making room for a few scattered birch trees and at that point '[t]he conversations became more cautious, and began to speak more cryptically' (*ibid.*); finally, descending from the mountains to the first inhabited places, Hirka becomes increasingly restless, accompanied by the worsening weather, with violent gusts of wind that foreshadow the disaster that will soon occur during the ceremony of the Rite, in which Hirka will show everyone that she is a human, unleashing general panic and then being sentenced to death. The emotional states proposed by Ryan are therefore present in the novel; plants are omnipresent, as they influence the decisions of the soul, heal the body, empathize with the moods of the characters,

sometimes sarcastically, other times by infusing feelings of hope and love in the atmosphere or, on the contrary, by witnessing and foretelling nefarious events and death (Ryan 2018: 17). Native landscapes are bearers of memory, even when one visits places with characteristics similar to one's place of origin or belonging. In *Odin's Child*, we have what Ryan defines 'a state of plant-human souls in dynamic exchange with the material landscape' (2018: 29).

Ryan states that plants can mediate human experience of the world and that they possess the ability to perceive the bodily presence of other living beings. His assertion is supported by the idea of going beyond the mere utilitarian function towards the plant world to establish 'a bio empathic feeling with plants that entails openness to being affected by plant gestures in response' (2018: 93). In the last chapter of his work, Ryan analyses the feeling of hope in phyto-literature, underscoring the fact that this is often transmitted from a given environmental context. He asserts that this can constitute a resource in the current era, given that ecocriticism is able to embrace 'the idea of the plant as a bearer of hope for a more equitable future on earth for itself and us' (2018: 236). The feelings of hope and empathy transmitted by trees are also the last ones experienced by Hirka. This eventually seems to hold out some hope for a new world. When, at the end of the novel, she has to find the courage to leave the world of Ym to return to what is assumed to be the world of human beings by jumping into a portal made of a circle of stones, she looks hesitantly at the depiction of two pale people without tails near the stone where she must jump and feels as if immobilised by fear. 'But behind them was a tree. This calmed her down' (Pettersen 2021: 621).

'PLANTSCAPES' AS LIMINAL PLACES

Hirka's progressive construction of identity can also be analysed from an ecofeminist perspective, based on the liminal spaces between human/non-human and girl/woman. An eco-hybrid union between the protagonist and vegetal nature constitutes the main reason why Hirka is also described, by others, as monstrous. *Odin's Child* is thus, once again, an example of how Nordic fantasy reflects ecological issues. Hirka therefore embodies both the prototype of the adolescent transitioning to adulthood and the prototype of the heroine who finds her strength

in a profound union with plant nature. The vegetal world as a place of challenge for the growth of young women is not a new concept, but has brought with it a wave of depictions in which plant nature occupies a prominent place alongside the main characters. Hirka's closeness to plant nature characterises the whole narration but an ecofeminist reading shows how Hirka's symbiosis with plant nature solidifies notions of women's deeper understanding of non-human life.

Greta Gaard defines 'ecofeminism' as combining feminism with environmental politics: 'Ecofeminism is a perspective that sees social and environmental problems as fundamentally interconnected. Beginning with a recognition that the position and treatment of women, animals, and nature are not separable, ecofeminists make connections among not just sexism, speciesism, and the oppression of nature but also other forms of social injustice' (2009: 323). Gaard bases her reflection on an eco-pedagogical reading that examines oppressive structures by examining environmental issues, as well as gender, ethnicity, class, disability and age. More generally, ecofeminism applies feminist theories to the interpretation of human interactions with plant nature and underlines the need to overcome and replace patriarchal visions of the world. Some ecofeminist approaches claim that certain androcentric ideologies have contributed to the current environmental crisis. The use of gendered (feminine) metaphors and metonymies associated with the environment – such as 'Mother Nature' – links environmental degradation to patriarchal rule and the oppression of women. Ecocriticism analyses the coexistence of environmental and narrative discourses, providing the opportunity to consider how texts position readers through specific narrative strategies, such as focus and point of view (Massey and Bradford 2011: 113). An ecocritical approach can be strengthened and enriched by the incorporation of ecofeminist perspectives that examine the extent to which these texts may or may not be permeated by patriarchal ideologies (Vakoch 2011; Vakoch and Mickey 2020).

To underline Hirka's relationship with vegetal nature, the theory developed by the Australian researcher Alice Curry regarding ecological issues in children and young adult literature is of great interest. Curry includes 'the child' as a third category within her ecofeminist analysis, alongside women and nature (2013: 6). She combines an 'ethic of care' with the claim that the exploitation of non-human nature is linked to that of women and children. Hirka is closely linked to natural

elements and consequently has crossed the border between human and non-human: this aspect is precisely one of the basic ideas of ecofeminism. One of Hirka's main characteristics is, therefore, her liminality, which consists not only in being on the threshold of adulthood but also, more metaphorically, in being relegated to the margins of society. On a worldwide scale, in the fantasy genre, the 'heroic journey' has until very recently been strongly characterised by male protagonists retaining conventional patriarchal values. The fact that some Scandinavian fantasy novels of the last decade represent young women as closely related to nature could compensate for this trend.

Pettersen creates a heroine whose story fluctuates between personal development and the affirmation of one's role within a society that does not belong to her; this implies that the social structure, pyramidal and hierarchical, is overturned and that, at the same time, plant nature, as a source of power, emerges. Hirka's eco-feminist characteristics include not only the relationship between humans and non-humans but also the fact that Hirka herself exhibits some traits of 'animality', which are also the reason why the collectivity keeps her at arm's length. The ecofeminist approach proposed by Curry is materialistic and aimed at the dissolution of the nature/culture dichotomy (2013: 160). Curry points out that certain ecological knowledges emerge through liminality and therefore she proposes a hybridism that can be considered a union between 'the deep ecology's notion of identification between humans and the natural world and ecofeminism's call for plurality of voice and ethical actants' (2013: 164). In this regard, the philosopher Val Plumwood asserts that the barrier between deep ecology and social ecology is mainly political, not theoretical, and that a debate that compares them is certainly important but unnecessarily divisive (1992: 225).

Further discussion about the relationship between these two poles could focus more on newer concepts, such as Curry's analysis of ecological hybridity. Vegetal nature and the human subject, as a result, are intertwined in a different way than the conventional dichotomy. According to Curry, such a hybrid fusion between humans and non-humans is important for understanding how young people's identity is formed within an ecological discourse (2013: 7). As a hybrid being himself, the adolescent therefore is a metaphor for the future and for the changes that characterise the maturation process. In an ecofeminist reading, the eco-hybrid form implies a constant dialogue between the

subject and plants, which is also consolidated through the practice of embodiment. A turning point on this concept is Stacey Alaimo's *Bodily Natures* (2010), an interdisciplinary study of the trans-corporeal perception of matter. Alaimo proposes transcorporeality and embodiment as new critical models to adequately theorise the often unpredictable and unwanted actions of human bodies, non-human creatures, ecological systems, chemical agents and other actors (2010: 2). She defines trans-corporeality in various ways, including 'movement through bodies', 'exchanges and interconnections between various corporeal natures' and 'material interconnections of human corporeality with the non-human world' (2010: 2–3). Her argument is based on the recognition that some material forces are often invisible, or that there is a flow of substances between people, places and economic-political systems which, to be understood, require broader scientific and sociological knowledge (2010: 9). Transcorporeality is positioned as a new hermeneutical horizon that also takes into consideration the ways in which plant nature signifies, acts upon, or otherwise affects human bodies, knowledge, and practices (2010: 7–8).

In Alaimo's description, trans-corporeality realigns the body with the material world from which it was removed by the constructivist theories of the end of the last century; while these theories have provided valuable insights into the categories of race, gender and class, they have downplayed the significance of matter itself. Trans-corporeality, on the contrary, naturalises the body by reinserting it into a world made up of biological creatures and ecosystems (2010: 115). Alaimo therefore proposes an environmental ethic 'that refuses to see the delineated shape of the human as distinct from the background of nature, and instead focuses on interfaces, interchanges, and transformative material/discursive practices' (2010: 142). Hirka's corporeality reconnects with plant nature and makes her prefer a life on the edge. The fact that Hirka's only existence is on the margins of society is related to the idea of the placement of the protagonist in the so called 'blind space' theorised by Curry, in which plant nature and peoples are relegated: 'A "blind space" exists outside of culturally imposed reference frames and denotes a space both out of sight and out of mind: a space to which the cultural majority either wittingly, or unwittingly, turns a blind eye' (Curry 2010: 20).

CONCLUSIONS: AN ECO-PEDAGOGY FOR THE FUTURE

Taking into consideration the ecofeminist concepts of female ethics of care and eco-hybridism, *Odin's Child* is an example of how part of the new Norwegian fantasy draws attention to feminist instances which include the vision of a symbiosis between beings. Both Hirka and plants are protagonists with subjectivities of their own, and they are engaged in a relationship in which they are reciprocally connected to each other. We have seen, therefore, how the novel also offers an ecofeminist reading, whereby the girl, the material landscape and non-humans are connected. In this sense, eco-hybridism is established through Hirka's simultaneous belonging and exclusion to the two worlds: she truly fails to integrate into the first world, but she does not belong to the second either. Yet, it is precisely through her 'plantiness' and eco-hybridity with vegetal nature that Hirka manages to give a voice to natural elements. By creating images that perfectly reflect Hirka's confusion, loneliness and helplessness in the face of a hierarchical society, Pettersen urges her readers to connect with the protagonist and her story. When Hirka, forced to make a change in her life, looks up with a smile at the mountains of Blindból the reader feels the sensation of a new beginning, a beginning full of hope, even if it does not appear to be something easy to make. As Ryan's phytocritical method points out, the emotional registers of plants, which underly explicit messages of regeneration and hope, relates to the landscape as described in *Odin's Child*. Hirka needs a space of her own, a place away from people, to grow and mature, making an emotional and psychological journey towards wisdom and inner peace. The similarities that describe Hirka in symbiosis with other living beings are repeated throughout the narrative: through the focus on trees, animals, flowers, grasses and mountains, the book extends the concept of 'vital principle' through the co-presence of different species. In this way, Hirka's eco-hybridism underlines the importance of corporeality, of physically and emotionally inserting oneself in natural places, and at the same time consolidates the role of the liminal passage through a disorientation which finally leads to full self-awareness.

This also constitutes the essence of the important pedagogical role of young adult ecofiction. As Valentina Adami states, individual emotional crises are necessary at first, because they are strictly 'connected to the adolescent's quest for identity, in an attempt to represent and

test young people's dilemmas against a given background' (2019: 130). And it is in the affective mediation that the pedagogical function of young adult fiction takes place: by showing young readers that they are not alone, and that they have the power to do something in a decaying world. Eventually, young adult fiction educates them into becoming 'better and more active citizens' (Adami 2019: 131), also by shaping and reinforcing their attitude to the natural world.

In *Odin's Child*, Pettersen characterises plant nature as a space for escape and respite from emotional breakdowns caused by pain and fear; at the same time, it is a source of knowledge through implicit messages which, if well interpreted, are a valuable tool for better understanding the concepts of death, regeneration, and life cycle of living beings. When, for example, Hirka is faced with the tragedy of her father's unexpected suicide just when things seem to be going for the best, an immediate escape into the surrounding *wilderness* is instinctively crucial for her. As Greg Garrard claims, 'the protagonist leaves civilization for an encounter with nonhuman nature, then returns having experienced epiphany and renewal' (2004: 49). Furthermore, according to Curry (2013), the adolescent stands on the threshold between an innocent childhood and an adult life and therefore also has a unique opportunity for education. Thus, young readers have the possibility to identify with and draw inspiration from the stories of Hirka, who has a distinctive connection to plant nature, which often shapes her identity. Hirka's changed attitude and her orientation towards natural elements can help make the reader aware, or at least show a direction towards a more sustainable lifestyle. Hirka's maturation consists in moving from being a teenager who knows how one could live more sustainably to putting this awareness into action towards an understanding of the fact that all life forms have the right to (co-)exist. Such an awareness can therefore be described as the basis for the formation of an ecological citizenship (Goga 2018: 88). From this perspective, *Odin's Child* introduces vegetal nature and botanical awareness as something to refer to in daily life, and, at the same time, affectively underscores the deep and current human need to re-establish this kind of contact.

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Unlocking Landscapes Through Westonbirt's Archive: Exploring the Inclusive Possibilities of Entangled Histories of Plants, Places and People

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ABSTRACT

There are growing calls across research, policy and practice to enable historic designed landscape experiences – from country estate gardens through to public parks and arboretums – that are accessible and engaging for all. In this paper, we highlight how meaningful access reaches beyond measures to enable physical presence in a landscape to the ways in which such landscapes, and human-plant relationships, are storied and interpreted, ensuring that people can also identify as part of the evolving stories of such places. Using twentieth century archival sources, particularly the diaries of foresters, held on site at Westonbirt, the National Arboretum in Gloucestershire, UK, we suggest ways in which sensory history approaches can be used to bring greater depth, context and diversity to historic designed landscape interpretation. Applying these approaches to archival research offers the potential to broaden the stories shared about such landscapes, enabling people to learn about and relate to the varied social and sensory histories of these significant places, plants and the people that shaped them.

KEYWORDS

sensory history, social history, inclusion, landscape, trees, workscapes

INTRODUCTION

Since the 2003 Diversity Review (Ward Thompson et al., 2003), there has been growing momentum in the UK to nurture natural and cultural heritage landscapes that are 'accessible to everyone' (The National Lottery Heritage Fund, 2019), 'for everyone, for ever' (The National Trust, 2020), and that reinforce 'identity and belonging' (Welsh Government, 2017). Despite such ambitions, use of and engagement with such landscapes remains uneven across diverse social groups and individuals, leading to concerns about a so-called 'heritage participation gap' (Maeer et al., 2016; Historic England, 2020). To understand why this may be occurring, it is important to understand how and why particular stories – and human/non-human inhabitants – of landscape come to be privileged and prioritised over time (Alaimo, 2017; Bell, 2019, 2020), and how to promote a more inclusive sense of landscape belonging. To do so, we draw on the specific example of a widely celebrated Grade I listed historic landscape in Gloucestershire UK – Westonbirt,

the National Arboretum – but hope these findings will be of relevance to other designed arboreal landscapes.

Existing research has foregrounded and contested the longstanding tendency to construct landscape as a 'particular *visual* mode of observing and knowing' (Wylie, 2007: 5). With the term 'landscape' originating in the seventeenth century, there was a tendency to privilege the landscape perceptions and values of elite, wealthy (white, male) landowners who had the power and resources to re-imagine and represent their landscapes within archival and field records as works of art 'to be looked upon on as one would a painting' (Whyte, 2015: 926). Indeed, since the eighteenth century, visual landscape contemplation has been reified, with aesthetic ideals of beauty, the picturesque and the sublime capturing the Romantic imagination (Macnaghten and Urry, 1998). Despite efforts to counter these dominant visual tropes (Braun 2005), an emphasis on the visual and the 'scenic' tends to persist in landscape management policy and practice (Morris, 2011; Strategic Historic Environment Forum, 2016). This emphasis risks alienating those who experience the landscape primarily through sound, touch, scent and movement (Macpherson, 2008; Bell, 2019, 2020), and those who actively work with, shape and care for the plant and animal life that co-constitute such landscapes. Responding to the call for more embodied history (Parr, 2010: 1–24), we pivot away from this elite conception of the landscape, instead recognising landscapes as created, managed and experienced physically by labouring bodies interacting on a variety of sensory and emotional levels with plants and their habitats. This shift in focus also provides an opportunity to bring physical human-plant relationships to the fore.

The failure to fully understand alternative and diverse ways of inhabiting, sensing, and making sense of landscape has led to the rise of so-called 'accessible' experiences that tend to segregate on the basis of perceived difference rather than fostering genuine social inclusion and transformation within landscape interpretation efforts (Historic England, 2015; Sensory Trust, 2017). While there are promising efforts underway to improve physical landscape access, such as the 'Miles Without Stiles' initiative originating in the Lake District and the 'Countryside Mobility' scheme operating across southwest England, it is important for people also to identify as part of the evolving story of

a landscape, recognising feelings of landscape belonging as relational achievements (Harvey, 2015).

Similarly, human-plant interrelationships are entangled and complex beyond the visual, and these are 'best studied within the complex webs of relationships that exist between plants, animals, objects, environments and people' (van der Veen, 2014: 799). As Jones has argued 'the differing ways identity is performed through trees and forest landscapes, be it through work, history, culture or politics, are thus a complex outcome of entanglement between the human and the trees and forests themselves' (2011: 159). Whilst the social, cultural and natural heritage embodied in landscapes can 'provide a sense of continuity across generations and contribute to healthy identity construction' (Napier et al., 2017: 15), failing to respect human diversity in landscape interpretation (for example, through the reproduction of ableist, classed, gendered and racialised cultural narratives, Tolia-Kelly, 2007) can both exclude and alienate. In this paper, we reflect on opportunities to draw on sensory history approaches to bring greater temporal depth and context to historic designed landscape interpretation, foregrounding sensory and social diversity both in the stories told about landscape, plants and humans, and the ways in which they are told.

LANDSCAPES FOR ALL: A ROLE FOR SENSORY HISTORY?

The generally visually dominated approach of landscape history can close off avenues of wider historical exploration, but there are opportunities to change this by using sensory history methodologies. As noted by historians Hardy and Cushing (2017: 140), 'most sensory historians agree there has been an overemphasis on sight in the writing of history, with much of what is recorded in images and texts preserving visual impressions'. Newer work in garden and landscape history – such as the Dumbarton Oaks publication, *Sound and Scent in the Garden*, edited by Fairchild Ruggles (2017) – has begun a wider academic conversation about the sensory history of a range of landscapes from around the world (see also Hickman, 2021).

The emphasis on sight in landscape history has long been reproduced in landscape interpretation approaches, although efforts are being made to broaden the sensory focus. In a survey of the state of the

field of sensory history, Tullett (2021: 805) commented that 'in museums and heritage the ocular-centric institutions that emerged during the nineteenth century, ruled by the demand to look but not touch, have been replaced with object-handling, sound-installations, pedal-operated sniffing devices and opportunities to taste recreated food and drink based on historical recipes'. Similarly, some gardens such as the Oxford Botanic Garden, UK, and the Royal Botanical Gardens, Canada, have developed programmes encouraging visitors to engage sensorially with select plants in their collection. There is clearly more potential to develop this sensory engagement through the plants themselves. However, it is fair to argue that such efforts are less apparent within outdoor historic designed landscapes than indoor attractions (although the work of organisations such as the Sensory Trust has been encouraging change in this area, working with wider forms of sensory engagement to address the inaccessibility of many of these landscapes). There is clearly potential to develop the sensory engagement of people with the plants themselves. As Ryan records from his field interviews in Australia, 'the interconnections between plant materiality – the spikiness, stickiness, smelliness of living plants, as well as the qualities of plant-based objects – and human memory are palpable' (2017: 212).

In order to investigate how archives relating to historic landscapes might be read through the lens of sensory history for our project, *Unlocking Landscapes: History, Culture and Sensory Diversity in Landscape Use and Decision Making*, we worked with the onsite collection at Westonbirt Arboretum – which today includes over 15,000 trees and 600 acres of woodland. This archive primarily retains papers relating to the years since 1956 when the UK Forestry Commission took ownership, with the site now managed by Forestry England, a more recently established division of the Commission. Such institutional plant collections might not seem an obvious place to look but important narratives and sensory experiences lie within the box of twentieth-century official civil service work diaries, as well as unlikely sources such as the National Insurance Act Accident book. These sources tell histories of labour, and the close sensory and emotional relationships of working people to the site and the trees, particularly foresters, as well as giving occasional insights into other uses by visitors (both official and unofficial) and the personal lives of these key personnel. The work diaries consulted were a consistent run of hand-written daily notations within

official HMSO issued blank diaries, dating from the 1950s-70s. These were mainly completed by Edward (Ted) Leyshon who was the first Research Forester after the Forestry Commission took over the site in 1956; they give an insight into the day-to-day work on the site managing the plants and the people, from which we can glean labouring as well as sensory histories.

Our methodology follows the well-trodden approach of social and labour historians, which commonly trace their origins back to Thompson and his ground breaking book, *The Making of the English Working Class*, in which he claimed, 'I am seeking to rescue the poor stockinger, the Luddite cropper, the "obsolete" hand-loom weaver, the "utopian" artisan, and even the deluded follower of Joanna Southcott, from the enormous condescension of posterity' (1963: 12). However, we aim to extend this further by suggesting an approach to landscape interpretation that combines social and sensory histories to tell new narratives. As Smith (2021) argues, there is a strong historical interrelationship between the developments of social and sensory history. As such, we focus here on the experiences of workers within the Westonbirt Arboretum landscape.

This approach is also grounded in the concept of the 'workscape' posited by environmental historian, Andrews, in contrast to notions of landscape as static or detached. Focusing on landscapes of coal extraction in late nineteenth and early twentieth century America (2008), Andrews conceptualises 'workscape' as 'a constellation of unruly and ever-unfolding relationships – not simply land, but also air and water, bodies and organisms, as well as the language people use to understand the world, and the lens of culture through which they make sense of and act on their surroundings' (2008: 125). This concept 'treats people as laboring beings who have changed and been changed in turn by a natural world that remains always under construction' (2008: 125). We draw on this concept as labour was also key to the restoration, maintenance and development of Westonbirt Arboretum in the 1950s, and continues to be integral to its maintenance and wider enjoyment. As one report stated in 1964:

> On taking over the management of the arboretum, the most immediate tasks confronting us have been the following: bringing back the rides and avenues to a respectable condition, suitable for regular machine maintenance; salvage operations throughout the arboretum and Silk-wood, to free valuable subjects from intrusive growth of natural regeneration or less worthy trees and shrubs;

> the provision of adequate propagation facilities and nursery space; the mapping and cataloguing of the collection; and the provisions of further planting space for new or under-represented subjects. (Wood, 1964: 85)

The concept of workscape allows us to move away from the idea of the static design moment, widening the discussion to take into account different temporalities and bodies, including those of plants, that have made and remade the landscape. As the Westonbirt Design Plan for 2021–2030 makes clear, their approach is a dynamic process: 'ongoing maintenance and development will involve the removal of certain trees, however, the regular addition of between 100 to 250 healthy new specimen plants every year, will ensure that future generations can enjoy the living botanical collection and historic landscape' (Ballard, 2021: 6). Andrews (2008) clearly links the labouring body to its environment and the concept of change as something which occurs both within the person as well as by them. In this paper, we attend to the landscape as an ever-changing workscape, co-constituted by humans, plants and other non-human activities. In particular, we reflect on the potential of sensory history approaches to inform more inclusive landscape interpretation strategies, as well as to better understand the intertwined histories of labour and the senses in these arboreal spaces.

WESTONBIRT ARBORETUM – FROM NARRATIVES OF PEACEFUL LEISURE TO A RISKY WORKING LANDSCAPE

Today Westonbirt Arboretum is nationally significant due its historic importance (it is given protection through a listing process by Historic England because of this) and is classed as the National Arboretum for England. Like most historic designed landscapes, it is a palimpsest of history with layers of human involvement dating back centuries. Traces of these layers can still be seen in the Silk Wood where the practice of coppicing for woodland management is believed to date back to at least 1292. In 1831 it was recorded that, 'no part of Silkwood is left standing for 24 years for the whole wood generally comes round to be cut in the course of 18 years or there-abouts' which highlights a long history of labour and care of foresters within the landscape (Westonbirt, MAN A 6, typescript). However, the most dominant narratives used within interpretation on the site are the histories of the Holford family who

established the arboretum area, the plant collectors who located and brought back the exotic trees, and the biographies of the trees themselves. Robert Staynor Holford, in particular, looms large as he owned Westonbirt for 53 years, 'a period which saw a total transformation of the gardens as well as the building of the present house and the development of the arboretum and Silk Wood' (Symes, 1990: 159). As noted by Piebenga and Toomer (2007: 113), the Forestry Commission, which took on the site after decades of neglect, 'has had to balance the scientific value of the tree collection with the need to accommodate thousands of visitors each year, while at the same time paying heed to the unique, historic planting style employed by R. S. Holford'.

However, by shifting our focus to the later twentieth century history of the site, we gain an insight into the labour of managers and foresters and recognise their roles in shaping the landscape and its planting since its days as an elite private retreat. As Elliott, Watkins and Daniels note, it 'has been transformed since the 1950s under the Forestry Commission into a very popular national arboretum' (2007: 4) and transformed into a leisure space for a visiting public. Focusing on this equally important, later part of the site's history allows us to move away from visual preoccupations which highlight the 'picturesque' nature of the Holford's planting, as it is generally understood, to consider the noises, smells and other sensations experienced by those working during these decades of change. However, it is worth considering that the picturesque itself as a concept does allow for other ways of understanding the landscape beyond the visual aspects. As Daniels and Watkins (1991: 141) have noted of Uvedale Price, one of the eighteenth-century proponents of this landscape style, his idea of the 'picturesque' was more complicated than the generally understood conception of looking at the landscape like a picture. They argue that his aesthetic approach to landscaping engaged with his estate management in far more practical ways; 'picturesque landscaping was implicated not just with the appearance, but also with the fabric, of the countryside' (1991: 141). There is space, then, even within ideas of the picturesque to think about labour and landscape management. As Brook (2008: 117) notes in her analysis, 'the picturesque is the landscape that can arise with the human working in and with nature as a participant'.

These approaches also challenge some of the prominent narratives of such sites as historic places of peaceful leisure in the same manner

as time spent looking at a painting; narratives that seem unlikely given evidence of noise in the landscape in the past emanating from animals, people and lively activities such as mock naval battles known as naumachia (Felus, 2016: 60–62). While perceptions of peaceful leisure may still have been true for elite landscape owners, such as the Holfords, some of the time these narratives erase other histories such as those of gardeners, foresters and other workers of the land, and their close interrelationship with the species they planted, nurtured, maintained and destroyed. Whyte (2013) argues that 'too often it seems **the people are left out** unless they were the elite individuals responsible for the wholesale transformation of the landscape'.

At Westonbirt, the stories of the Holfords are foregrounded over both those of the Forestry Commission's own institutional history and the histories of others that have cared for and interacted with the significant trees in the arboretum that are now highlighted to the visiting public. Westonbirt's website highlights a number of 'significant trees' that have 'come to perform a particular role in Westonbirt's landscape, owing to their size, location or number within the collection'. These include, for example, the incense cedar (*Calocedrus decurrens)* which is native to Oregon and California, and Scots pine (*Pinus sylvestris*) which is a native conifer (https://www.forestryengland.uk/westonbirt/signature-trees). Related to these often-exotic tree collections, such as the incense cedars, are the wider colonial histories of indigenous relationships and the people who cared for, worked, lived with and knew the trees before the plant hunters arrived, appropriated and renamed them. Given the specific archival sources under investigation, this article focuses on the narratives of people working on a daily basis *within* the arboretum and interacting with the trees and other plants, but related examples of colonial erasure in relation to wider histories of plants and natural history collecting have been discussed elsewhere, for example by Das and Lowe (2018).

There is, of course, a dichotomy at the heart of turning these workscapes into visitor attractions, whereby the sensory experiences sought out by visitors are often at odds with the lived reality of the maintenance and restoration work needed to sustain the cultural identity of these sites. As recognised by Mitchell, a Silviculturist for the Forestry Commission and author of the guidebook, *Westonbirt in Colour*, 'these operations must never appear wholesale nor detrimental to the enjoyment of the

peaceful arboreal setting that the public come to see' (Mitchell, 1969: 5). This sentiment perhaps reflects the passive nature of expected visitor-plant interactions which 'should' predominately be visual and quiet. This mode of landscape interaction is akin to that expected from visitors to an art gallery or museum, with people encouraged to look but not touch; although that of course is changing and is a relatively modern conception (Classen, 2007).

From the title alone, it is obvious that Mitchell's guidebook would focus on the colours of the trees, and other associated plants, which have long been a highlight of Westonbirt's offer to visitors. The main headings of sections within the guidebook retain this visual approach, with categorisations based on seasonality and exceptionality/novelty: Winter flowering shrubs; coloured bark; spring flowers; summer flowers; autumn colour; autumn fruit; conifers; maples; sorbus species; very rare species; new trees and shrubs raised at Westonbirt; biggest specimens known in Britain (list of trees with height and girth); vistas, groups and designs. The only partially sensory description beyond what could be 'seen' was of 'peeling and flaking bark', although this could also be considered more visual than tactile, and there is nothing about the taste of the autumn fruit for example. Associated literature tends to reinforce rather than disrupt cultural perceptions of the ways in which the landscape should 'properly' be experienced: 'We are invited to inspect and photograph the landscape from clearly signed viewpoints, to traverse the landscape on way-marked routes and to understand the landscape via punctuations on those routes where interpretative information is provided. Such experiences will often have been preceded by idealized representations of the landscape in advertising brochures' (Jones, 2011: 171). There are, however, suggestions that visitor interactions with the trees were more transgressive, interactive and sensory than this, with Leyshon recording in 1958 that he had seen 'two women with cherry branches in the Silk wood' (Leyshon, Sunday 27 April 1958).

Reflecting parallels with the concept of 'workscape' – albeit not limited to the experiences of employed labouring bodies – anthropologist Ingold similarly reframes landscapes as 'taskscapes', recognising they are multisensory places that are 'perpetually under construction' (Ingold, 1993: 162), where humans are in intimate and dynamic sensory contact with plants, weather and the other co-constituents (1993: 170):

> Yet you do not only look, you listen as well, for the air is full of sounds of one kind and another. Though the folk beneath the tree are too busy eating to talk, you hear the clatter of wooden spoons on bowls, the slurp of the drinker, and the loud snores of the member of the party who is outstretched in sleep. Further off, you hear the swish of scythes against the cornstalks and the calls of the birds as they swoop low over the field in search of prey. Far off in the distance, wafted on the light wind, can be heard the sounds of people conversing and playing on a green, behind which, on the other side of the stream, lies a cluster of cottages. What you hear is a taskscape.

This is to some extent a rather romanticised sensory vignette of an imagined past, but historic evidence from Leyshon's diary demonstrates that the early years of the Forestry Commission's ownership created an explosive, noisy workscape. In January 1958 the air was filled with the sounds and smells of gelignite being exploded to remove tree stumps in the Sand Earth area of the site. On 2 January, Leyshon records that he: 'Set up warning notices, flags in Silk Wood for blasting. Jim Waller came 11.30 with explosives. 5 stumps blown out in Sandearth. Used say 10 lbs gelignite & approx. 28 detonators'. On the following day this continues: 'Collected the material and transported to Silk Wood (2 journeys). Remainder of day blasting in Sandearth. About 11 stumps blown. 9lbs gelignite 50 detonators. Collected all flags & notice boards a little after 4.00 pm' (Leyshon, Friday January 3, 1958). This was all part of the management of what had been or was perceived to be a neglected overgrown site. As quoted above, R.F. Wood (conservator, Research, Forestry Commission) had reported in 1964 that the taking over of the management of the site by the Forestry Commission had led to large-scale landscape change, including work to 'free valuable subjects from intrusive growth of natural regeneration or less worthy trees and shrubs' presumably in some cases via the blasting of inappropriate tree specimens (1964: 85). This loud activity (which would potentially have created an intense smellscape too) was a far cry from the idea of quiet natural space, so much so that the police had to be informed in advance of this level of noisy intervention. Much of this activity sought to 'tame' or 'order' the trees and other plants in the landscape as a previously private estate was transformed into a visitor attraction, as well as to categorise them into more and less 'worthy' specimens.

The focus on designed historic landscapes as peaceful leisure spaces also hides the realities for people engaged in shaping and maintaining these landscapes, particularly in relation to forestry work. For example,

Bingley (2013) conducted oral histories with people both historically and currently engaged in coppicing and woodland work in North-West England, many of whom challenged popular notions of the peaceful, healthy 'green idyll'. They described the detrimental aspects of their work for health and wellbeing, including the cumulative influence of sometimes quite isolated, poorly paid, physically exhausting and dangerous work. There are also class dimensions here between conceptions of the landscape as a place of leisure (reflecting idealised upper and middle-class norms) as opposed to one of work. As Bender (2010) argues, sensory studies offer an approach which can help to unpack the role of social class in shaping landscape norms and experiences. In our example, the tranquil, relaxing woodland visit can easily be differentiated from the noisy, dirty work of the labourer. Mack (2015) similarly uses sensory history to interrogate middle class conceptions of the labouring classes. One example he gives relates to Payer's work on noise, noting that Austria's nineteenth century elite intellectuals 'blasted noise as an enemy of civilization itself. Their critique of noise as a threat to Vienna's culture was summed up in the motto of the city's Anti-noise Society, "Silence is noble"' (2015: 6). This example reflects a form of 'urban prejudice' that has been critiqued in the wider body of literature on soundscapes, denigrating industrial sounds solely as 'sonic pollutants' (Arkette, 2004: 161). We can, therefore, draw connections between elite conceptions of the nobility of silence contrasting with the noise of industry and leisure of the lower classes.

From the National Insurance Act Accident Book at Westonbirt, we also get a sense of the dangers of human/more-than-human encounters within the arboretum as a workscape including the following four entries:

> 1977, Arboretum section I: Cut to top of head – hit by falling branch … had just finished work … and had just sat down for the 1pm meal brake [sic.] when a small branch fell on his head.
> 1980, Silk wood: Wasp stings on leg. Bathed dettol. Forest office.
> 1984, Public toilet, near V.C: Flushing toilet – chain broke and cut and bruise close to right eye.
> 1984, Silk wood: bit by adder on left hand treated at Royal Gloucester Hospital.

Such accounts can bring both humour and drama to interpretation stories (the toilet chain breaking definitely has the possibility to do that!) as well as highlighting the difficulties of labour and the potential

for physical damage to humans from entangled working relationships with plants and other more-than-human agents.

There are other accounts in Rice's diaries of 1959 of cuts to hands and fingers for example: 'Victor cut off thum(b?) on saw. Walt cut finger while painting pea sticks' (Saturday May 23). On the following Monday he recorded that 'Victor & Walt absent. Walt cut hand with bill hook' (Monday May 25). Such accounts hint at the potential for becoming impaired through forestry work. As recently as 2015, researchers argued that 'the forest industry is amongst the most physically dangerous to work in worldwide' (Mylek and Schirmer, 2015: 392). Other forms of work within the landscape also bring risks and by ignoring these narratives we may be unintentionally erasing the experiences and existence of important individuals and groups. As Blackie and Turner's research has revealed, '"Disabled" Britons worked throughout the nineteenth century, often in some of the most physically arduous industries of the time' (2018: 38). As they note, the lack of visibility of disabled bodies in histories of labour is problematic as 'not only does this obscure the historical meaning of work and impairment; it also reinforces inaccurate and harmful ideas about the productive capacities of disabled people' (2018: 8). There is no reason to believe that this is not true of landscape labour histories, with more effort needed to locate disabled people and their stories.

This concern reflects a wider issue relating to archival research and the documents that have been retained within the archives themselves. Brilmyer (2022: 168) has recently interviewed disabled archival users who noted a 'complete absence of representation around disability in archives', or where there was some representation, there was then a lack of complexity in what was represented. Using health and accident accounts of those shaping the landscape – and their often challenging, physical interactions with the site – could be just one way to highlight how common disabling events were in the past, and one that could be supplemented with oral histories where archival sources are completely silent.

There are also accounts of the weather in the diaries which point to the challenging realities of working in close proximity to trees in all the elements. These accounts include, for example, brief, daily descriptive sentences such as 'Very cold, cloudy and snow later then rain' (Leyshon, Wednesday 12 March 1958). If tracked over decades, this daily record gives us a pattern of weather which could be used to connect today's

visitors to the past experiences of workers in the same space. Other diaries include more detail, for example D.J. Rice, assistant forester, wrote in a more romantic style particularly at the start of his tenure. In January 1959 he recorded that there was: 'Frost. Road very icy. Snow 1½". Very beautiful on trees in bright sunlight' (Rice, Thursday 8 January 1959). Alongside these daily records, a number of extreme weather events are noted, including regular entries during the winter of 1963 that illustrate the difficulties and hardship of living and working in such a landscape. For example:

> Severe frost night of 18/19. Deep snow lying. Strong East wind. Sunny. Pauline [his wife] at Mrs Dick's am. Look after children & routine jobs. Collected Pauline and went to Tetbury – difficulty getting down drive. Stuck in drifting snow on drive on way back – collided with fence. 1 ½ hours to dig out. (Leyshon, Saturday 19 January 1963).
> Snow (1") night of 19/20. Deep snow lying, Dull and cold. Drive blocked again. Freezing rain at night. (Leyshon, Sunday 20 January 1963).

Alongside the daily entries, key events are sometimes noted relating to both the weather and the seasons. For example, on the front cover of Leyshon's diary for 1970 he records the following: 'First real spring day, May 3rd. Long, cold wet weather Jan Feb Mar & Apr. Drought late May Early June. First snow on Christmas Eve after mild Autumn'. Although not part of the central research for this paper, the transcribed *Westonbirt Arboretum and Silkwood Log Book* kept by William John Mitchell (Head of Gardens in the 1920s and 1930s), also gives a sense of the centrality of the weather to life working with plants. In his notes for the year 1929, he wrote,

> The spring was very late, I don't think there could have been a more beautiful one everything both flowering and foliage seemed perfect, probably due to their escaping the spring frosts. The Acers I was particularly pleased to see undamaged this past spring. For 3 years in succession they have been injured in this way, and I am afraid we hardly realise the effects of this cumulative injury. When a tree dies I think frequently this is the cause of its doing so, what greater checks can there be than to have all its young foliage destroyed and growths cut back to a tree (Mitchell, 1929: 30).

This extract also hints at an emotional relationship with the trees, including the attachment Mitchell felt to their wellbeing, demonstrating a level of care and connection. This is something which should not be overlooked. Recent work in Melbourne exploring the responses of

people to the loss of street trees has argued that we should not ignore such feelings, highlighting the importance of 'lamenting as a process through which feeling, accounting for, sharing, and placing loss fold through one another, through time, among bodies, and in places, taking shape in individual and collective ways' (Phillips, Atchison and Straughan, 2023: 2). This historic example also fits with more recent research which has suggested that plant environments can be 'a site of potentially transformational "enchanting encounters" through the possibility of social tactile-sensory immersive engagement in the world' (Delsesto, 2020: 204).

The accounts discussed above counter prominent narratives of such landscapes as quiet spaces of leisure and retreat, as well as ideas that the sensory experience of landscape is always a positive, healthy one. For those out working in all weathers, these spaces can be challenging and difficult environments as well as providing opportunities for encounters of awe and wonder. Such archival narratives can be used to initiate a broader dialogue about the nuances of historic landscape histories, beyond those of the elite landowners, plant collectors and designers. By placing a greater diversity of humans back into the landscape stories shared, we can also highlight the importance of human-plant care in the history of landscape making, remaking and ongoing maintenance which is often invisible to the casual visitor. This is not to say that historic places are yet to do this; at The Lost Gardens of Heligan in Cornwall, for example, the stories of the gardeners are given prominence. However, such efforts could be expanded to wider landscapes and to feature untold sensory histories of agricultural workers, foresters and gardeners in relation to plants, as well as other individuals and groups such as those visiting and passing through at different stages of a site's history.

There are signs that Forestry England are thinking in such ways themselves as their ambitious management plan for Westonbirt (2021–30) has stated that they intend to 'develop plans for a new engagement 'hub' for scientific exploration, engagement with visitors in real decision making, and interpretation regarding arboretum management and work in action' (Ballard, 2021: 15). The narratives outlined here highlight one way in which such management and work in action could be contextualised through the experiences of foresters in the past as well as those working there now. Similarly, referring to an area of ancient forest

at Westonbirt, the plan states the intention to 'develop Silk Wood's diverse landscape in a way that supports a dynamic and inclusive engagement programme that enables people to understand and actively engage in the management of Silk Wood; tell the story of its history; increases awareness of the threats to woodland in a changing world, and the benefits of woodland to better health and wellbeing' (Reynolds, 2020: 4). Again, past narratives have a place in telling the histories of those who have coppiced, planted trees and even blown-up stumps in order to manage the woodland in relation to practices of their time. Such historical contexts are, we would argue, essential in placing contemporary challenges and practices within a longer narrative of change and human engagement with the treescapes.

The temporalities of the stories told about landscape are then also important. People involved in managing arboreal landscapes like Westonbirt Arboretum are acutely aware of the risks of climate disruption for the trees they protect, the landscapes they come from, and the many human and more-than-human lives that are reliant upon them. Growing calls to connect with trees (and 'nature' more broadly) in the name of health and wellbeing need to embed pro-active strategies to help people cope with more distressing experiences of impending or experienced environmental change. As argued by Chawla (2020: 630), 'as processes of global environmental change accelerate, there is a dark side to feeling kin to creatures that are disappearing… To feeling connected to a world whose life systems are unravelling'. Perhaps a key role for historians during this time of rapid change and adaptation is to give a clear sense of temporal context and point to periods of environmental and social change in the past, highlighting strategies used to cope with and adapt to them alongside narratives of changing plant-human interrelationships.

CONCLUDING REMARKS

In this paper, we have explored just one example, analysis of a single box of archival sources to reflect on opportunities to use sensory history to tell different landscape stories; stories that may resonate in ways that foreground plant-human connections and that are perhaps more relatable and accessible for people who might not otherwise feel at home

in such traditionally 'exclusive' settings. These sources expand perceptions of Westonbirt Arboretum as an elite space of peaceful leisure, by highlighting its history as a workscape, including the importance of close human/more-than-human interrelationships in the shaping and management of the place through labour. By drawing on such histories in landscape interpretation efforts – and through sharing contemporary narratives of labour in the landscape – we could re-animate the stories of these landscapes and situate a greater diversity of people within them. The sensory lens also has the potential to bring to the fore the entangled histories of plants and labourers and cause us to question our culturally embedded conceptions of designed landscapes as solely tranquil retreats, as they have often been for the elite.

Recognising the potential for carefully curated stories to inform change (Rice and Mündel, 2018), people can claim space through creative efforts to 'move past the single story that collapses the diversity of experience and replace it with a multiplicity of stories' (Mykitiuk et al., 2015: 380). The approaches to archival research discussed here have the potential to change the stories we tell, creating more inclusive landscape narratives, as well as helping people learn about the broader histories of the landscapes and the interweaving of plant-human lives that co-constitute them. The focus on 'stories' rather than 'story' is key as there are many, often overlapping, narratives, which can speak to similarly diverse landscape visitors, shapers and inhabitants. As civil rights activist, Grace Lee Boggs, wrote: 'History is not the past. It is the stories we tell about the past' (2012: 79). She also argues that it is important to consider 'how' we tell these stories. Indeed, stories can 'bring us together and teach us about the world; yet they are also the things that break us apart and make us invest in ways of being that are destructive to each other and to the world' (Rice and Mündel, 2018: 220). The crafting and telling of stories around landscape histories similarly needs research, care and thought.

An over-reliance on written text and interpretation boards can reinforce already privileged experiences and ways of perceiving landscape, and may limit more experiential and embodied ways of sensing, knowing, imagining and understanding landscapes and their constituent plants that are just as important. For example, within this project, we worked with a sound artist and visually impaired facilitator, to create a 'Sensing History' sound installation at Westonbirt in April 2022, which

was designed to inspire visitor imaginations about the diverse histories of the site and its inhabitants (human and otherwise).[1] With speakers located at varied heights through the trees and a recorded narrative interspersed with a rich soundscape, the experience took visitors on an imaginary journey from the Ice Age to the Iron Age, to the creation of the arboretum and the present day, making links to the endangered global geographies of the valued arboretum tree species and foregrounding the dynamic nature of the landscape over time. This type of creative interpretation, which draws on sensory histories, moves away from an exclusionary focus on framing such places primarily as static 'beautiful' settings to appreciate from a distance, recognising them instead as multisensory working landscapes, often connected through their careful mix of species and past/contemporary labour, to endangered and changing landscapes all round the world.

Lessons could also be learned from the creative approaches to historic landscape interpretation developed by the Sensory Trust; from an inclusive tree film trail installed (at the time of writing) at three woodland sites in the south west of England that draws on evocative multisensory stories of trees and plants (Kendle, 2021), to the use of sensory mapping and sensory trail markers and the installation of benches with tactile clay tiles providing a subtle invitation to engage with the full range of sensory experiences on offer in such historic settings (discussed in Hickman and Bell, 2023). Similarly, the 'Sensing Culture' project developed a range of creative approaches to interpretation at Lewes Castle in the south east of England; from an adapted listening bench and mobile application providing an audio described tour of the castle featuring historic characters and binaural recordings,[2] to the creation of multisensory 'Castle Explorer Bags' containing resources such as recorded stories, scent and sound activities, objects and creative activities.[3]

In the case of Westonbirt Arboretum, we were not sure at the start of the project whether any useful archival documents would exist on site to identify such sensory histories and are grateful to Forestry England for pointing us in the direction of the box of recently donated diaries. There is a lesson to landscape historians here to be open minded when

1 https://sensing-nature.com/news/sensing-history/

2 https://sensingculture.org.uk/case-studies/lewes-castle-audio-guide/

3 https://sensingculture.org.uk/case-studies/lewes-castle-app/

investigating archives, and to explore what might otherwise seem like unlikely places to find traces of the sensory experiences of those who were present in the landscape in the past. Of course, not all landscapes will have archival documentation but there are other archaeological ways of reading places as workscapes, tracing marks on the land or examining plants themselves, for example to identify histories of coppicing, or signs of earlier management practices that could also signpost new ways in for contemporary visitors (Rackham, 2018: 39–60;). As Dufraisse et al. (2022: 2) state, 'the forest can be understood as part of the social space of a community, both shaping and shaped by communities', and it is important that all available methods are used to clarify the myriad connections that exist between different communities and their woodlands. It also raises the essential role of accessible landscape histories and stories that emphasise the dynamic qualities of landscape, helping to resist disempowering anxious logics of change and ensure continued landscape care in the face of such change.

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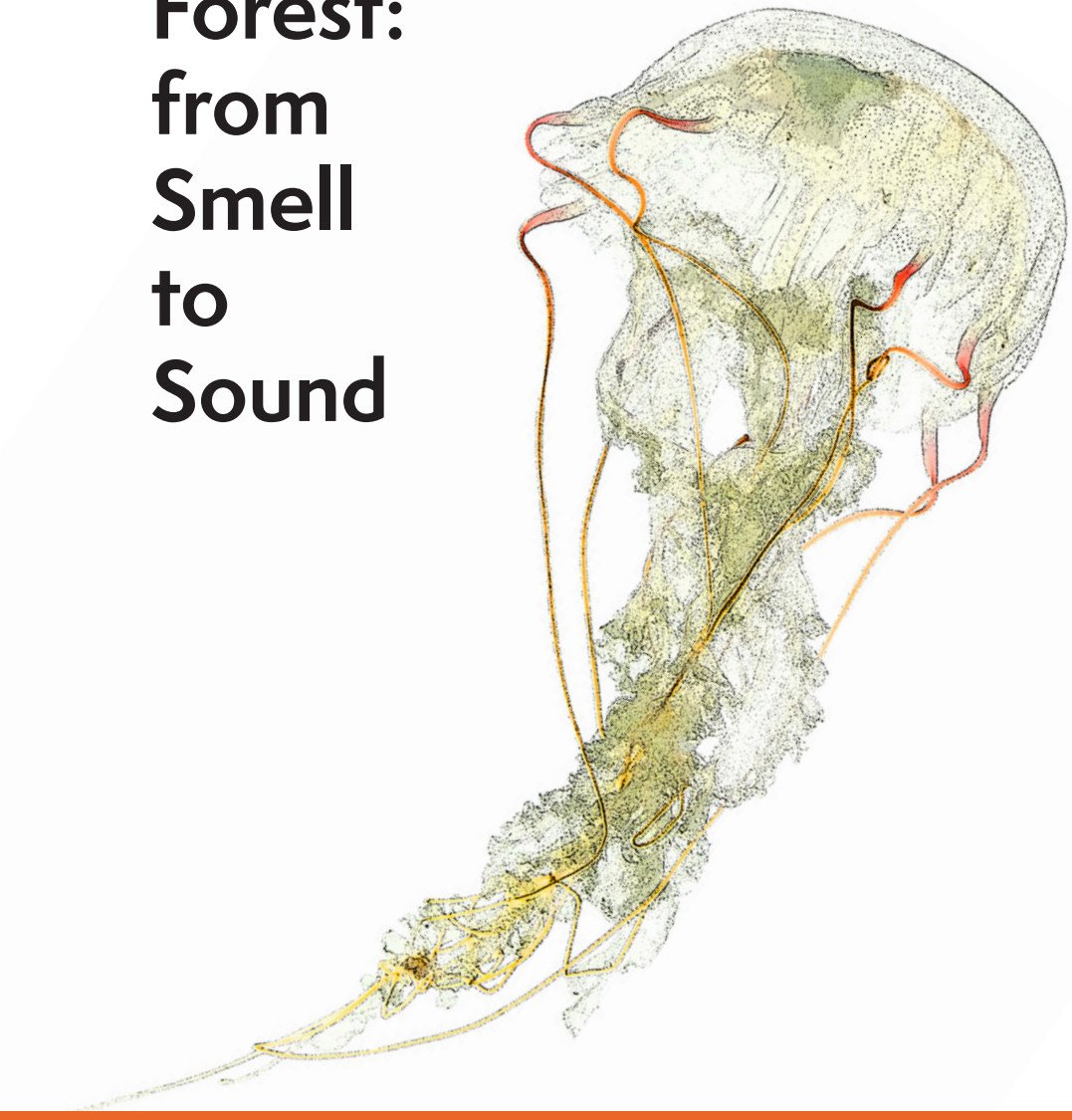
Melody Jue, Anya Yermakova, Jacob Cram and Eli Stine

Invisible Kelp Forest: from Smell to Sound



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ABSTRACT

Invisible Kelp Forest: From Smell to Sound is a speculative fiction and an 8-channel sonic composition that explores the possibility that *sound* is an ideal medium for translating senses of *smell*, or chemosensation underwater. It invites the listener to smell the kelp forest with their ears, a mode of synaesthesia. We explore the ways that sound and smell can both convey intensity, distance, dispersion, texture and elements of memory that may be specific to particular organisms. We imagine that the olfactory memory of the kelp forest is multiple, linked to what is meaningful for different marine fauna. In a literary narrative that explores the sensations of four different marine organisms, we develop sonic impressions of their chemosensory experiences of the kelp forest in a scientifically-informed manner. *Invisible Kelp Forest* plays with invisibility in several ways: by denying the listener any visual cues, they must use their imagination to conjure a spatial sense of the kelp forest on their own. We invite listeners to pay attention to the way that listening for smell feels in the body, perhaps deterritorialising the sensorium.

Artist's statement:

'Invisible Kelp Forest' is a collaboratively-written speculative fiction. It draws formal inspiration from Ursula K. LeGuin's 'Author of Acacia Seeds', which itself is written in the style of a scientific report in a hypothetical journal. LeGuin's original story imagines how human scientists might come to decipher the writing forms of several organisms. We offer a variation on LeGuin's story by changing the imaginary scientific discipline from 'thero-linguistics' (beast languages) to 'sensorialogics'. Our objective was to imagine translating not writing, but the sensation of underwater olfaction. In the story, we substitute our own names/initials for the fictional scientists that LeGuin uses. Research for 'Invisible Kelp Forest' was based on our site-specific research snorkelling the kelp forests Santa Barbara, supported by a grant from the Ocean Memory Project and we are grateful to Christoph Pierre for allowing us to observe the porcelain crabs and spiny brittle stars at the tanks he manages at UC Santa Barbara. 'Invisible Kelp Forest' has four companion pieces translating underwater smell into sound, composed by Eli Stine, which we encourage the reader to listen to along with the story that follows.[1]

1 https://www.melodyjue.info/media (linked files are Open Access CC BY-NC-ND 4.0).

NVISIBLE KELP FOREST

Special issue of the *Journal for the Study of Sensorialogics* (formerly Therolinguistics)

Editorial

The Journal for the Study of Sensorialogics is greatly in debt to Dr Ursula K. LeGuin, whose foundational report, 'The Author of Acacia Seeds', remains a canonical study in the field. Looking back in the years since she first penned the study, much has changed – even the name 'Therolinguistics' has shifted to 'Sensorialogics'. This change was made to include more lifeforms than just animals, and more media than just writing. 'Sensorialogics' attempts to translate the sensory worlds of plants, animals, algae and microbes, and unfurl how these sensory worlds give rise to particular kinds of logicality. Sometimes the art of translation takes place in the medium of writing (as you read here), and sometimes necessarily takes place in another medium, such as sound.

Over the years, varied critiques have been made of Therolinguistics; even as it famously reoriented how we think about modes of environmental communication, it tended to hide the practices and sensory habits of the Therolinguists themselves, obscuring their presence in the field and only recording their observations. Dr LeGuin's meditations on Ant writing came close to making human sensory biases more apparent through her noteworthy distinction of revaluing the emotions we project on 'up' and 'down'. In this analysis, she showed how in the lifeworld of an ant, 'up' connotes the danger of being away from home, and 'down' connotes safety and security of the nest – hence her brilliant translation that the inscription of Ant-writing 'Up with the Queen!' mostly closely meant 'Down with the Queen!' in human terms. Yet more needs to be done.

In this special issue of the *Journal for the Study of Sensorialogics*, we have curated four new sensory translations that take place within giant kelp forests in coastal California. These translations are speculative, accompanied by observational context. As members of the oceanic branch of *Sensorialogics*, we have prioritised the chemosensing of four different organisms: porcelain crabs, spiny brittle stars, microbes and the

sporophytes of giant kelp. Chemosensing is of particular importance in the lively, mineral, always-in-motion waters of the ocean, and prompts us to ask new philosophical questions about our own sensory norms.

If a logic is a kind of reasoning that follows specific principles, A. Yermakova theorises that logicking is the logic that emerges through the performance of being logical.[2] This is a form of knowing through doing – a mode, perhaps, of gerunding. Living organisms perform their own sensory logicking in ways that could never be entirely predicted by reading the scripts of their DNA; for example, one would be hard pressed to predict the wavy dance of the spiny brittle stars, which we discuss below, from genetic code alone. A focus on logicking lets the organisms retain their mystery, avoiding the sticky philosophical questions about consciousness, intention or whether or not behaviours are programmed. In our case studies, we examine embodied logicalities that are specific to the milieu of the ocean, which – as M. Jue reminds us – can be challenging to do from our own tendencies to think terrestrially.

We hope that our new translations will continue valuable work in Sensorialogics and encourage a greater awareness of human sensory habits, and a softening of these habits, akin to the kind of softening of tension when you breathe in and out to invite a muscle group to release during stretching. Our translations are experimentations in comportment, and you might feel compelled to move, bend or twist your body to try out the forms and movements that we will describe. We hope these four sensory translations offer the reader a renewed sense of wonder and humility about their own *Umwelt*, or sensory bubble. What you ultimately do with an expanded awareness of alternative ways of being in the world is to be determined.

Our translations play with several kinds of invisibility. In one way, we focus on organisms that hide (like crabs) and organisms that are microscopic (like part of the lifecycle of giant kelp), neither of which you would be likely to see if you were to swim or snorkel on the surface of the kelp forest. Yet invisibility is not only about objects one can't see, but about non- or sub-visual sensory modalities that saturate the waters and bodies of the kelp forest. Our translations tune in to the

2 On logicking as performance and practice, see Anya Yermakova, 'An Embodied History of Math and Logic in Russian-speaking Eurasia'. Doctoral diss., Harvard University Graduate School of Arts and Sciences, 2021: https://dash.harvard.edu/handle/1/37368370.

chemosensory worlds of kelp forest organisms, and connect modes of sensation.

In the spirit of Dr LeGuin, who famously offered a ballet as the best translation of the bubble writing of Adelie penguins, the following report is but one component of our translations of the chemosensory worlds we explore. E. Stine has developed an acoustic translation, which we invite you to listen to while reading our descriptive report. A. Yermakova encourages you to think of the report itself as a kind of musical score for chemosensing, a notation from which one might develop other improvisations and embodied engagements.

It should be noted that E. Stine's work is not a sonification, a mode of assigning a particular sound to a particular data value, but a translation – understanding that the work of the translator is never the same as the original, but involves interpretive choices that constitute a new creative work. As you listen to E. Stine's composition, we ask the reader to avoid the habit of assuming that one sense is restricted to one organ. In the immense world of the ocean, to use E. Yong's phrase, sometimes one smells and hears with the skin, a distributed mode of sensing whose implications we will unfold below.[3]

M. Jue, J. Cram, A. Yermakova and E. Stine

A Percussive World [Porcelain Crabs]

Giant kelp forests commonly grow just beyond the surf zone, a frothy and turbulent environment that occasionally presents a physical challenge to aspiring students of Sensorialogics. Yet much can be observed even from the edge. As we shuffled and stooped over the fluffy white foam,[4] we felt a light spray on our faces, the metallic scent of cold ocean.[5] At the same time, we noticed that the opposite process was happening underwater: so many tiny air bubbles mixed into the water, giving

3 Ed Yong, *An Immense World* (2022). We have kept references light throughout the text, since this is a work of speculative fiction that happens to take the form of a report.

4 A. Yermakova notes that whitecaps – waves beyond the surf zone, caused by the wind – are called 'little lambs', or *barashki*, in Russian.

5 Perfumer Yosh Han, who is also a diver and a sailor, has noted the metallic qualities of ocean scents.

the visual appearance of uncorked champagne – a process called bubble entrainment. Would oceanic creatures smell the fragrance or stench of these bubbles, the chemosensory equivalent of auditory staccato, misty bursts of odiferous air? Would the surf zone be a place of such rapid mixing that few smells could be detected, much less acted on (or chased)? Would smell be difficult to isolate from the percussive crash of the waves, the beating sun, the pull of the tide and the flick of the wind? Everything was in movement; even the egret, wading through the surf, as A. Yermakova noticed, used a meandering sideways walk to compensate for the loss of balance as each tidal ebb pulled the sand from under its feet.

One of the hidden creatures in the surf zone is the porcelain crab, a small creature that lives under and around rocks. Although there may have been porcelain crabs at one of our snorkel sites – a foamy entry point perilously guarded by submerged rocks and slicked with plumes of feather boa kelp – we did not dwell long enough to check. Instead, we visited the aquarium of C. Pierre, a university collections manager, who had a dozen Porcelain crabs in a small acrylic tank. Porcelain crabs are not true crabs, but evolved into a crab-like shape from squat lobsters. As J. Cram reminded our team, Nature has made many attempts to evolve a crab (a process called carcinisation), which 'simply must be a favorite form'.[6]

Many lobsters and crabs have chemosensory hairs on their legs and feet, distributing the sense of what we would call smell/taste along each appendage. To a human observer, the sensory worlds of crabs and lobsters exhibit synesthesia – a simultaneity or confluence of two senses, taste and touch. We must be careful not to fall into the trap of assuming that chemosensation is distinct from other senses, just because our skin doesn't act as a nose or tongue. In addition to the simultaneity of taste/touch, we suspect that acoustics are also extremely important to porcelain crabs. For comparative analysis, A. Yermakova lowered a hydrophone into several crustacean-bearing tanks. We heard sharp clicks in one tank, and C. Pierre offered to capture the culprit – *Alpheus clamator*, an inch-long twistclaw pistol shrimp – to be examined by hand.[7] In the tank with the porcelain crabs, A. Yermakova only noticed the gentle

6 Direct quote from Jacob, channeling Randall Munroe, https://xkcd.com/2314/.

7 This came with the risk of being pinched, but M. Jue extended a hand anyway.

sound of bubbling water. At first she thought it was the aquarium setup, until she lowered the hydrophone into the next-door tank with no crabs: no sound of bubbling water! The crabs – which were busily filtering water for bits of their favorite krill with their feathery appendages – must have been producing the sound of the bubbles mechanically, through the acoustic properties of their shelled and hairy bodies. We gather that the experience of being hard-shelled does not predestine the crabs to create only sharp sounds – the porcelain crab's flutters were as soft as our own breathing.

What is it like to sense the world as a porcelain crab? Imagine that the entire shell of your body is a percussive instrument, a drum that tastes the world around you. You might click and clack on rocks, or you might sweep and aerate the water around you, filtering for plankton. You perform a logic through the rhythms of your tasting. Your most vulnerable moment is when you moult, stepping out of your hard shell so that your new, soft shell can expand out into a larger covering. The experience of moulting might be like re-stretching the skin of a drum, the quiet pause that you take before resuming your percussive tasting – producing sounds like bubbling water, a gentleness that belies your hard, resonant exterior.

The Dance of Olfaction [Spiny Brittle Stars]

One of the most profound biases that we bring to the study of olfaction is the assumption that it has to involve a nose – an organ for smelling. This is not always the case in the ocean, when important chemical cues might be wafting in seawater. Spiny brittle stars do not smell with a nose, but with their whole bodies. Relatives of sea stars, they take the name *Ophiothrix spiculata* (ophio- meaning 'snake') for their long, bristly arms that can voluntarily break and regrow. Spiny brittle stars are extremely mobile and can move quickly when distressed – one arm leads, while the other two pairs heave its body forward through rapid jerks. This was not the behaviour that we witnessed for acquiring food, which involved far more fluid movements. The conceptual leap that needs to be made is that chemosensation in the ocean has to be thought of spatially, in three dimensions, attentive to degrees of stillness or turbulence and the positionality of the observer.

We first observed spiny brittle stars at the campus aquarium with C. Pierre. A large rectangular tank contained piles and piles of them – some

resting on each other, others half-buried in sand. It was the lowest tank of a stack of three, with water flowing between them. We conducted a brief experiment by pouring the delectable, fragrant juice of chopped-up squid into the upper chamber. The squid juice was slightly purplish, and flowed readily into the stream of clear seawater. We then squatted and peered over the tank to watch the gradual diffusion, tensed but still as we awaited a reaction. It was not as we expected: as the juice reached the tank of spiny brittle stars, the spiny brittle stars did not try and chase down the smell. Instead, they raised their long, spiculated arms above them, expecting to grasp their usual food (fish flakes, according to C. Pierre) and bring the small fragments towards their hungry mouths. It was a moment of smelling/tasting in place. We inferred that the squid juice was clearly something the spiny brittle stars could chemosense – not so much a dinner bell, as a cue to begin doing a small dance in place.

Imagine the act of smelling as a kind of shiver that runs fully down your arms and legs, a rolling prickle preparing your whole body to become available for action. On a chemical level, the squid juice activates the receptors on your skin, your muscles, your fascia. It is a full body response. Observers might call your movements a dance, but what emerges isn't choreographed. You aren't thinking of intricate patterns that would be beautiful to watch, or of an ordered sequence of movements. Your dance is an improvised response to this smell-sensing, and you swirl your appendages to concentrate the sensation more fully. The creation of motion, of turbulence, is a strategy to draw the smell – and maybe tasty particles – closer to your grasping tube feet. You move not to chase down prey, or locomote, but to waft tasty particles closer to you, undulating your arms in place. In this dance, you do not worry about where the smell is coming from, like a detective. Your logicking is source-agnostic. Much like a contact improvisation dance (whose nickname 'armpit dance' is appropriate here), you unfurl your arms in constant contact with the water.[8] The axis of olfaction is not a centre (a nose) but your five appendages rotating through space. Smell is immanence.

Tumbling the Arrow of Time [microbes]

How do smells disperse in different parts of the kelp forest, and to whom does this matter? Predisposed as we are to sight, our team snorkelled to

8 'Armpit dance' is a term used by Jurij Konjar and other improv dancers.

several kelp forest locations with a syringe of green fluorescent dye. This technique was less precise than the one used by A. Alldredge, who engineered a spear-gun-like instrument for deploying dye at a distance to track sinking particles. We quickly realised there was wisdom in such a set-up, given our own difficulty in not accidentally drifting into the cloud of fluorescent dye at close range. Thankfully, our wetsuits were not stained, but the ocean reminded us of a beautiful epistemic lesson – that observers are always entangled with the situations of observing.

The fluorescent dye exhibited dramatic differences in dispersal, depending on where we released it. It disappeared immediately if released in the surf zone, its signature bright yellow-green cloud erased by the next coming wave. But in water surrounded by thick giant kelp, it lingered the most – emerging from the syringe as a bright silken fabric billowing into many folds, as if swirled by an invisible dancer. It formed a soft, hyperbolic origami of thinning sheets before stretching out into mucus-like strings in a vaguely glowing cloud. The behaviour of this drift brought home the realisation that giant kelp forests create pockets of slower water where, unlike the surf zone, chemical gradients might become temporarily sensible instead of immediately churned. If this is true – if slower water helps establish more persistent chemical gradients – it seems that we should always consider seawater movement as a force affecting the sensation of seawater chemistry.

Flows, currents, turbulence – all of these circulate through the soup of the ocean, laden as it is with swirling life forms, minerals, particles and more. Such conditions matter to oceanic bacteria, which use chemical gradients to navigate. Yet here let us pause to note that 'navigate' for bacteria is quite different than it is for humans. When we navigate, we might use a map, or an abstract representation of space. Not so for the oceanic microbe, which completely lacks a map, and instead engages in chemotaxing. Like the spiny brittle star, ocean microbes smell with their whole bodies – but for different physical reasons, having to do with their microscopic scale. Ocean microbes are spherical, rod, spiral or crescent-shaped beings – many are surrounded by two or more flagella. In order to move, the flagella link together in a corkscrew shape and spin in the same direction, motoring the organism forward. The microbe detects chemical concentrations as a way of determining whether or not to continue moving forward. If the microbe senses that it is moving towards a lower concentration of an appealing chemical, it is more

likely to stop, tumble, and randomly move in a new direction. In this way, ocean microbes distinguish between *gradients* rather than *objects* – a world of cloudy thicknesses and wispy thinnesses. But what about the experience of making contact with a fluffy particle of marine snow? From a microbial perspective, tuned to a world of flowing chemical trails, would encountering an object feel like hitting a sharp gradient, the sudden surprise of a tasty encounter?

Imagine sensing and describing the world only in terms of concentrations or gradients. You could move 'towards the concentration' (forward) and 'away from the concentration' (not forward) – for example, the ammonium wake of a fluffy particle in the ocean.[9] Upon sensing this trail, you pick a direction and begin to move. If the concentration becomes too faint, you might stop, tumble, and then begin swimming in a new direction. If this was the sensorialogic that framed your world, how would you spatialise time? Would the future or past be a gradient towards which you continually move, and sometimes get wrong? What about the pause of tumbling?

Consider how we think of tumbling across terrestrial and cultural situations: tumbling might imply the motion of spinning or a state of disorientation. If you tumble forward, you may have stumbled or lost your equilibrium. You are no longer grounded, your weight balanced to the force of gravity. Tumbling can also refer to gymnastics/acrobatics, a fight, amorous relations or simply a method of mixing a drink. The a-directionality of tumbling can be exciting or frightful, depending on whether control was voluntarily given up or not. Even for us, tumbling may involve particular conditions of cognition and somatic awareness, such as an intensified attention to gravity, weight, and balance.

For the ocean microbe, tumbling embodies a distinct form of logicality. It is not disorientation, but a form of calculation, an embodied mathematics, the precondition for the making of a directional choice. J. Cram compares ocean microbes to dice – a tempting metaphor at the

9 The human characterisation of 'up-gradient' implies 'more of' something, as if it were a pile on the floor, while 'down' means 'less of' something. We must always watch ourselves for such moments of terrestrial bias and cultural bias in our orientations. For example, not every culture imagines the future as 'ahead' and the past as 'behind'; for the Aymara people, the past is ahead and the future is behind, unseen. What is the arrow of time in an ocean world of varying gradients? If the microbe could philosophise, where would it locate the future?

level of form and function, since microbes are both physically round and probabilistic in how they determine a direction in which to move. Their agency is in the act of tumbling, not in the direction taken. Forward is movement towards a density that you like, and not-forward is the pause that you take to calculate a new angle to turn. Forward is confidence, not-forward is contemplation. In the turbulent and watery world of ocean microbes, perhaps it is normal to never be oriented, sensing the contours of chemical gradients in a map-less game of olfactory Marco Polo.

Invisible Kelp Forest

We have presented speculative translations of the sensorialogics of porcelain crabs, spiny brittle stars and microbes, each with different relations to invisibility. They are invisible because they are either very small or good at hiding in place, which makes these creatures somewhat difficult for us to observe. Yet we have also highlighted the invisible contours of their chemosensory worlds, and how their modes of sensation give rise to different sensorialogics. What we are calling the 'Invisible Kelp Forest' includes not only unseen organisms, then, but unobserved sensory ways of being in the world. The kelp forest is, after all, a metonym that includes not only *Macrocystis pyrifera*, the giant kelp, but also the full ecosystem of organisms that make their lives within the forest.

We have saved the question of the giant kelp for last, the keystone species in the undersea forest that can grow hundreds of feet long. Sometimes several strands of giant kelp braid upwards in magnificent ochre columns, stretching from the seabed all the way up to the surface of the ocean. At this limit, their orientation shifts and the giant kelp grow sideways, forming long floating plumes of canopy. This is the visible part of the kelp forest, the sporophyte phase, that has earned the terrestrial nickname 'redwoods of the sea'. Indeed, giant kelp exhibit many tree-like structures: a root-like holdfast to grip rocks; a trunk-like stipe to extend skyward; and leaf-like blades that photosynthesise sunlight, absorb nutrients from the soil-like seawater and produce zoospores.[10]

As snorkellers floating in the canopy of the giant kelp, we could see the sporophyte (giant) phase, but not the other generation in its life cycle. This alternation of generations requires some reorienting of

10 In evolutionary history, giant kelp is a type of macroalgae, and thus an older form than terrestrial plants and trees.

human norms. Imagine you produced children who looked *nothing* like you, microscopic and drifting along (zoospores). When these children grew to become adults (gametophytes), those adults would also look nothing like you; they would anchor in place and then produce sperm and eggs, which would combine to create your *grandchildren*, who would finally grow to look like you. One generation – yours – would be conspicuously large, growing into giant columnar forms, while the alternating generation would be microscopic.[11] It is a life cycle with two adult phases (sedentary) and two seed phases (zoospores and sperm, drifting) – and thus four kinds of sensory logicality.

Let us start with the sensory logicality of the zoospore – the future forest, microscopic and adrift. It is easy to think of forests as rooted or attached in place, but not so for the tiny zoospore! It floats with the current, wafting along, and can slowly swim through the ocean with the help of two flagella. Although zoospores are denser than water and tend to sink, the buoyant lipids on one side of their body may help them orient towards the seafloor where they hope to anchor. Like microbes, they chemotax towards favorable gradients, and adopt a 'tumble and run strategy' to swim towards a good-smelling environment. This behaviour, along with a propensity to swim downward, eventually brings the zoospore to a pleasantly hard surface in a nutrient rich area, where it will attach and never swim again.[12] Its sensory logicality is twofold: forward / not-forward (chemosensing), and up / down (lipid buoyancy).[13]

11 In *The Biology and Ecology of Giant Kelp Forests* (University of California Press, 2015), David Schiel and Michael Foster note that macrocystis gametophytes are challenging to observe in the wild because they are very small and look like the gametophytes of other organisms. Most of what we know about macrocystis gametophytes is from laboratory studies.

12 The zoospore grows into a tiny and filamentous gametophyte, so small that nobody has ever seen one in the wild. How do we know they exist? Because zoospores grow into these in the lab! This second adult phase then makes sperm and eggs that develop into embryonic sporophytes, which grow into the giant phase of kelp.

13 The giant kelp zoospore senses an array of nutrients, including ammonium, nitrate, glycine, aspartate, iron, boron, cobalt and manganese. While they cannot sense gravity or light, they do sink slowly and have a tendency to float front side down (with the flagella, which pulls located at the front) so they are more likely to move downward than other directions. We wonder: could it smell light photodegrading? Would light impact the chemistry of what it smells? Should we be thinking about smell-light together in our translations, as an *a priori* condition? See Charles Amsler and Michael Neushul, 'Diel periodicity of spore release from the

The sensorialogics of the anchored sporophyte phase could not be more different; indeed, without motility, there must be a different logic. Where zoophytes are microscopic and mobile, the giant sporophytes make decisions about how to grow.[14] Their holdfasts know to grow away from light, towards darkness, forming basket-like structures gripped to rocks, as their bladed stipes stretch in the opposite direction – up, up towards the sunny surface, much like terrestrial plants. What is not known is whether or not adult sporophytes retain the ability to chemosense. The test for chemosensing in zoospores is to put them in a gradient and see which way they swim. An entirely different test – not based on motility – would need to be devised for the giant sporophytes. It is a mystery, then, whether the giant kelp forests *can* smell, or simply *have a* smell, underwater.

We wondered at how different it is to be an adult human. A. Yermakova notes how human children grow rapidly, and slowly gain more agency and mobility as they mature. The opposite seems to be the case in the dual life cycle of the giant kelp: sedentary adults produce a microscopic generation that moves. Does the decision to settle – to become adult – mean giving up a certain amount of agency, sensation or mobility? Or, do we need to rethink the cultural valuations we attach to motion, adulthood and aging itself? Is it a decision at all? Does the thought of being sessile for life bother us? Or does the botanical giant kelp model a different possibility, that an adult might grow continuously? Or is it too much of an anthropomorphism to use 'adult' as a referent in the life of giant kelp?

While these remain questions for future research, what giant kelp dramatically show us is how sensorialogics can be in flux throughout lifetimes and generations. We hope you can feel how the logicality of the porcelain crab differs from the spiny brittle star and the microbe – all under different conditions of motility, and even scale. But what is incredible is that the giant kelp demonstrates such dramatic different

kelp *Nereocystis luetkeana* (Mertens) Postels *et* Ruprecht', *Journal of Experimental Marine Biology and Ecology* **134** (2) (1989): 117–27; Eric Henry and Kathleen Cole, 'Ultrastructure of swarmers in the Laminariales (Phaeophycaea). I. Zoospores', *Journal of Phycology* **18** (4) (1982); *The Biology and Ecology of Giant Kelp Forests* (University of California Press, 2015).

14 Sometimes the zoospore makes a mistake and attaches to a very small rock, only for the entire rock to be lifted away as the buoyant kelp matures, carried ashore by the tides.

shifts in sensorialogics in one dynamic life. Although it is true that we, too, modulate forms of sensorialogics – one might think of how an infant learns to distinguish language, or how hearing might wane for the elderly – the giant kelp seems to exemplify an extreme case of alternation. The giant kelp life cycle is like variations on a musical theme, such as a fantasy or changing moments – forms that have wildly different phases, cued and conducted by the seasons.

Yet we worry about future moments, and the chemosensory memory of the giant kelp forests and all the creatures that live there. Indeed, we visited the giant kelp forest at a time of much concern for the changing climate, of ocean warming, acidification, and anthropogenic pollution.

As a way to better imagine the bubbling and billowing life of the kelp forest, full of scent, we offer E. Stine's sonic compositions.[15]

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Anya Yermakova is a multi-disciplinary artist and a scholar, who researches dynamic, relational and non-binary sense-making. She is interested in embodied understanding, in historical amnesia and in bodies as sites for recovering memories of pre-human evolutionary traces. Her work disrupts assumptions of normative, binary, disembodied logicality and is inspired by the archival traces of experimentalism in logic from the pre-Soviet (early 20th century) Russophone world. Yermakova holds a Ph.D. from the departments of History of Science and of Critical Media Practice at Harvard (2021), was previously a Visiting Assistant Professor of Sound at Oberlin College, an Artist-in-residence with the Ocean Memory Project, at Djerassi, and at UCross, and is currently an ACLS postdoctoral fellow at the Center for Humanities at Washington University in St Louis.

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Jacob Cram is an Assistant Professor at University of Maryland Center for Environmental Science. He is an oceanographer, whose research focuses on understanding the ways that microorganisms interact with their environment, and more broadly how they shape the climate and chemistry of earth. His research spans the open ocean and coastal environments and combines laboratory techniques and computer simulations with the goal of better understanding the ocean. Cram also examines the bacteria that associate with and impact the health of animals including larval oysters and humans. With co-authors Jue and Yermakova, Cram has helped to facilitate transdisciplinary collaborations between artists and scientists, such as this one here.

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Eli Stine is a software engineer, media artist, and composer currently working as an Audio Experiences Software Engineer at Meta (formerly Facebook) Reality Labs-Research. Prior to that, Stine was a Professor of Computer Music & Digital Arts at Oberlin Conservatory. Stine's work explores electroacoustic sound, multimedia technologies (often custom-built software, video projection, and multi-channel speaker systems), and collaboration between disciplines (artistic and otherwise). This work has been mentioned in the New York Times, USA Today, The Wire, The Economist, and on NPR, and has toured Europe, Asia, and India. In his free time Eli (sometimes) waters plants.

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Mukesh Malviya, *translated by Nina Bhatt*

Fungsu

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Set in a tiny village school near Betul, in the Satpura hills of Madhya Pradesh, this story grows out of the jungles of central India, from a region predominantly inhabited by the Gond Adivasi tribe. It narrates the rescue of a palm tree from flood waters by a group of students and offers a window into the life of plants in rural India and their relationships with its inhabitants.

The anecdote, related by a school teacher, straddles the space between writing about ecology, language and teaching, with few pretensions to theories of education or conservation, but with a lightness of touch and a subtle sense of humour that allows one to enjoy it like a fable, or just a tall tale.

The piece was first published in Hindi in Sandarbh Magazine[1]*, a bi-monthly periodical for teachers; accompanying illustrations are by the translator.*

The story is an old one. In those days I used to be in *Pawarjhanda*.[2] Very far from the city, and surrounded by forests, is this tiny hamlet. In the village, on the banks of a river, was my school. Not far from the school there is a big hill. The name of the hill is *Bhavargadh*.[3] The villagers bestow special names on all things they are associated with. The river was called *Zirna*,[4] the jungle *Gundi*[5] and *Daglabad*,[6] but the school was named only *school*. Through the school window, *Bhavargadh* appeared to be the fantastic vision of a hill, a picture on the wall. In the rainy season at the very centre of this hill, a white line would begin to be visible. This of course was only *Zirna* from next door, the river.

1 http://www.sandarbh.eklavya.in/

2 A village in Shahpur Tehsil in Betul District of M.P., India (Pawar-jhanda/power-pole, perhaps the name derives from a thermal power station in the vicinity).

3 The name could be interpreted as eddy/circular fort, *bhavar-gadh*, or as bhavar-ghar, the bee's home.

4 River named after a 'stream', 'spring', or 'small brook'

5 After the wild berry tree *Cordia gharaf* (Gundi, which perhaps derives from Gond, the name of the tribe, Gond/Gondi).

6 This could be interpreted as the jungle being named after 'the cloaked banyan-dagla-bad'.

The children knew that *Zirna* had her home in the mountain, but I only became aware of the fact when I first sighted the white line, soon after the rains. All the children who came to my school would have climbed the hill several times before they reached school-age. They would be well versed with the trails of *Gundi* and *Daglabad*, and *Zirna*, for they as good as grew up with them. When I attempted to impart bookish and alien bits of information, within the confines of a classroom, to these restless young kids, their attention very soon strayed to *Gundi*, *Daglabad*, *Bhavarghad* and *Zirna.* Gradually, under the influence of the young ones I too got wise.

Now, in school, some days we'd count the trees on *Bhavargadh*, give them new names, or we'd talk about the crabs of *Zirna*. Somedays, stories would descend the hills, while on others a new sport would break out from the jungle. Fantasies would flow very far out indeed, with the currents of the river.

You don't believe all this, do you? Come now, there's this tale, the one that was drifting along on the river *Zirna*, the one that the children of my school fished out and towed in, to school; listen to this one.

It so happened, that once when *Zirna* was flooded, we all stood there, engrossed in watching the river in spate or in *'poohr'*.[7] In *Pawarjhanda* a river-flood or *baadh* is known as a '*poore*'. In that '*poore*' we noticed a *taad/chhind*[8] palm that was being swept along. A very tall tree it was too. Near our school, on the riverbank, are two mango trees. It was between these trees that the *Chhind* tree found itself wedged. We all converged at this *Chhind* tree.

At one end of the palm was a great knot of gnarled roots, at the other end, not a single branch or leaf could be seen. All around the spherical trunk were indentations formed by the shedding of branches. The whole tree was incredibly attractive to look at. In the evening, though I left for home, some of the children continued to try to befriend the tree.

Next day when I arrived at school, I saw that the children stood near the *Chhind* tree, crowding around it. As they wished to bring the *Chhind* tree into the school, all of us together tried to give it a shove, to shift it, drag it, pull it along. With all our improvisations we only

7 The word 'poohr' or 'pur' refers to a river in spate or to flood waters; it possibly originates from the word 'poorey' or 'full to capacity'.

8 Toddy palm (*Borassus flabellifer)* / date palm (*Phoenix sylvestris*).

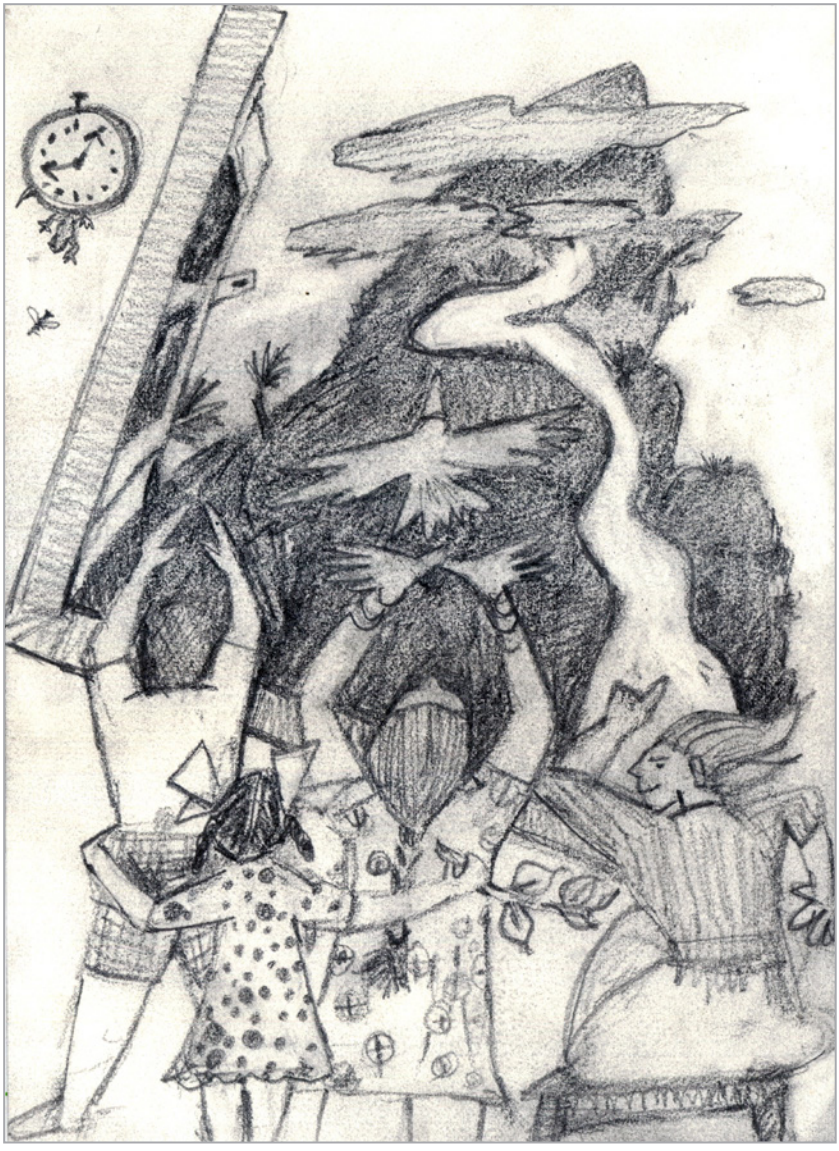

FIGURE 1
Bhavargarh appeared to be the fantastic vision of a hill, a picture on the wall. Nina Bhatt

FIGURE 2
Some of the children continued to try to befriend the tree. Nina Bhatt

contrived to bring it to the periphery of the school. The *chhind* tree was now part of our school property. As you know, the village folk would bestow unique names on the things related to them, so it was that the kids came to address this tree, too, by different names. Some would call it *Chhindu* [of the chhind palm]; and *Jabru* ['the strong one'], *Kaaru* ['the black / dark one'], *Ghasita* ['the one who was towed'], *Atka-bhatka* ['the stuck / the strayed one'] *Katila* ['the rootless / cut / severed one'], etcetera were all nicknames for the tree.

But one day a girl gave it a new name, *Fungsu*. Her frock had sustained a tear after being caught in its deep *fangson* [indents / bracts]. From then on, everyone began to call *Fungsu* by that name. Reclining *Fungsu* now became the school's identity. A few days later it struck one of the kids that *Fungsu* must be made to stand upright. Who knows how, but it seems that all along all the other kids had nurtured the very same idea too. When I got wind of this, I suggested a spot where *Fungsu* could be made to stand.

The next day a pit began to be dug. Within the span of three to four days, thirty to forty kids managed to dig a pit three to four feet deep. Now *Fungsu* had to be stood upright in the pit. Thanks to their friendship with *Fungsu*, it's true the children could rock and roll the tree, but to heft him to his feet was certainly no child's play. That was when the children summoned the elders from each home. Next day, along with the little ones, the adults too, turned up at school. The elders knew that if *Guruji* [teacher] was just as keen to raise *Fungsu* to his feet as the students were, then surely this had to do with some study plan.

The adults of this village possessed very many different skills. They first made the pit a little wider and deeper, then they pushed *Fungsu* and brought his lower end to the mouth of the cavity. To the top end of *Fungsu* they fixed a thick rope. One rope was tied to *Fungsu*'s midriff. Now both ropes were first flung over the thick branch of a mango tree nearby, then lowered to the ground. These ropes now began to be pulled by the adults. Some others, with the help of a stick manoeuvred the lower portion into place. For our part, the students and I, we were allotted no role, so we took up enthusiastic shouts:

Stronger now, *haiyya, haiyya* [rousing chorus],
Look who's standing, *Fungsu bhaiyya!* [brother]
Stronger now, *haiyya, haiyya,*
Look who's standing, *Fungsu bhaiyya!*

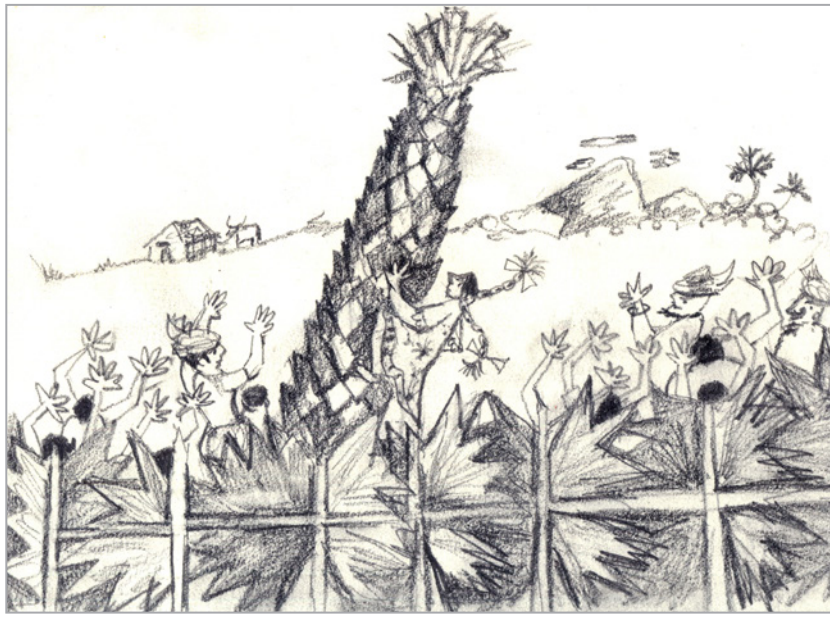

FIGURE 3
Steadying her feet on Fungsu's footholds, that girl could be seen ascending. Nina Bhatt

And this is how Fungsu *bhaiyya* became entrenched in the school courtyard. While we all acknowledged that *Fungsu* stands *only* so that the children can now clamber up him, *who* should be the first to do this remained to be seen. It was settled that the girl whose frock had once been torn by Fungsu must go up first. The very next instant, steadying her feet on Fungsu's footholds, that girl could be seen ascending.

Mukesh Malviya taught for many years at Shashkiya Madhyamic Shala (Government Middle School), Pahavadi, Betul, M.P. At present he teaches at Gyanodaya Vidhyalaya, Hoshangabad. A short film on his novel teaching methods 'A Teacher's Journey' has been made by Ashok Rupner (supported by IUCAA and Tata Trust). It can be sourced from Eklavya Publishers, Bhopal. *Pawarjhanda* is a small village situated in the midst of a jungle. (https://www.onefivenine.com/india/villages/Betul/Shahpur/Pawarjhanda) The author happened to be the

only teacher, in the only government primary school of that village. He taught in *Pawarjhanda* for about ten years (between the mid-1990s and 2005). His own home was about ten kilometres away, and he would commute by bicycle to the school every day. The students were largely children of the Gond tribals. The story published in *Sandarbh* magazine carries pictures of the school. He says, 'We made full use of the freedom granted to us. I penned more than ten stories/ essays about the students of this school. In time, they were published in about as many journals, all related to education and teaching.'

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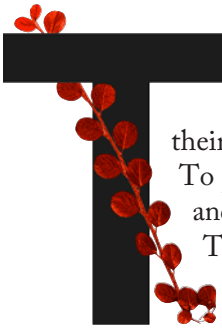
Poetry

Esthela Calderón

Invisible Landscape

I



To move slowly through my grandmother's whole garden,
where every plant knows my name and I know theirs.
To pinch the Basil, Rosemary and Mint
and then smell the pleasing perfumed breath of their reply.
To count the number of children born each week to the 'Mother of Thousands',[1]
the plant that cured my cough during the rainy season's cool days.

To climb among the branches of Guava or Mango *mechudo* trees,
where the birds shared the ripe fruits with me.
Bats love to dine on Guavas
and often I decided not to eat all the fruit
so that we could share.
In the morning, I was happy to confirm
that the Guavas I left were no longer there.

The Mango tree was an entire neighbourhood.
That's where the adorable Pacific Parakeets lived
along with the distrustful Groove-Billed Anis
as well as the industrious Spot-Breasted Orioles with their sun-colored plumage.

1 (*Kalanchoe daigremontiana*)

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And, well, that's where I lived, too,
(the one human who had cousins and uncles who hunted Iguanas,
Doves, Armadillos and Deer).

As evening was beginning to fall, it was time to say goodbye,
and silence returned to the Mango tree.
From a distance, I could see when it welcomed the strident Great-tailed Grackles.
And as it grew darker, all kinds of owls arrived.
It was time to sleep.

Kneeling beside my bed,
I'd join my little hands together in prayer to my guardian angel,
hoping no owl would screech its harbingers of death.

Even though death is none other than all of us.

II

Part of the farm near the house was planted with sugar Cane
for twisting confections called *alfeñiques*, blocks of brown sugar, the sweet juice of *guarapo* and molasses.
I learned how to peel the Cane stalks with a machete and to measure their ripeness
by the purple color of the bark.
I chewed and drank that sweet, sticky liquid until my jaw ached.
And I did this at the same pace as the cattle chewed theirs.
The cows' milk was more abundant
and so were my stomach pains
as my guts were cleaned right out.

Next to the sugar Cane grew a multitude of Reeds
that my grandfather used to make flutes with a single hole.
The hollow wand released its new voice that intertwined with my breath.
I'd climb one of the stones at the edge of the farm
and from there resounded every flute,
each with its own unique music.

The wind touched their tufts and made them laugh.
I'd fill them with air and listen to them sing.

III

The population of wild Tree Marigolds[2] grew alongside all the planted fields.
And *Piñuelas*[3] lined the roads.

Each year, the tall, thick-stemmed Marigolds transmitted enthusiasm with the swaying of their bright orange flowers.
And with their stylized bodies, people made rooftops and bins to store corn.

Piñuelas supplied the table with their exotic and edible red flower.
If it was still young, it was cooked in tasty stews.
and if ripe, we'd make a delicious dessert called *Motas de atol.*

I can taste my childhood next to these wild pineapples that no longer exist.
And I have set my daily life by means of these towering Marigold blooms jubilantly reborn in fields,
daring a never-ending human greed
to go ahead, just try and turn them into a new
invisible landscape.

Translated by Steven F. White

Paisaje Invisible

I

Recorrer el jardín de mi abuelita, donde cada planta sabe mi nombre y yo el suyo.
Pellizcar a la Albahaca, al Romero y a la Menta,

2 (*Tithonia diversifolia*)

3 (*Bromelia karatas*)

y recibir su aliento placentero y perfumado como respuesta.
Contar cada semana los hijitos que le nacían a la "Hoja del aire",
ahí estaba la cura de mi tos en los días lluviosos y frescos del invierno.
Subir entre las ramas de la Guayaba o del Mango mechudo
donde los pájaros compartían los frutos maduros conmigo.
Los Murciélagos aman cenar Guayabas
y muchas veces renuncié a comerme algunas
para dejárselas a ellos.
Por la mañana, me agradaba confirmar
que ya no estaban.

El árbol de Mango era todo un vecindario.
Por un lado, estaban los adorables Chocoyos.
En el otro los desconfiados Pijules
y por otra parte, los laboriosos Chichitotes de plumaje dorado.
Y pues, bueno, también estaba yo,
(la humana que tenía primos y tíos que cazaban Garrobos,
Palomas de castilla, Cusucos y Venados).

Cuando empezaba a caer la tarde era el momento de despedirnos,
y el silencio regresaba al árbol de Mango.
A lo lejos, yo podía percibir cuándo recibía a los estridentes Zanates.
Y ya en la oscuridad, arribaban las lechuzas y los búhos.
Era la hora de dormir.

De rodillas al lado de mi cama,
juntaba mis manitas pidiendo a mi ángel de la guarda
que ninguna lechuza lanzara sus presagios de muerte.

Y la muerte seguimos siendo nosotros.

II

Una parte de la chácara cerca de la casa estaba sembrada de Caña de azúcar
que nos regalaba alfeñiques, atados de dulce, guarapo y melaza.
Aprendí a pelar con un machete las varas de caña y a medir su madurez

por el color púrpura de su corteza.
Masticaba y tragaba su pegajosa agua dulce hasta que se me cansaba la mandíbula.
Lo hacía al mismo ritmo que el ganado mascaba la suya.
A las vacas les aumentaba la leche
y a mí los dolores de estómago
al limpiarme las tripas.

Junto a la Caña de azúcar crecía una multitud de Carrizos
con los que mi abuelito fabricaba flautas de un agujero.
La varita hueca dejaba salir su nueva voz que se entrelazaba con mi aliento.
Yo me subía en una de las piedras a la orilla de la chácara
y desde ahí sonaba y sonaba cada flauta
su propia música.

El viento tocaba sus penachos y las hacía reír.
Yo las colmaba de aire y las escuchaba cantar.

III

La población de Jalacates estaba a lo largo de todas las huertas
y las Piñuelas bordeaban los caminos.

Cada año los Jalacates transmitían entusiasmo
con el bamboleo de sus anaranjadas y brillantes flores.
Y con sus estilizados cuerpos la gente fabricaba trojas y techos.

Las Piñuelas abastecían la mesa con su exótica y comible flor roja.
Si estaba recién nacida, se cocinaba en sabrosos guisos
y si estaba madura, tendríamos un delicioso postre de *Motas de atol.*

Puedo saborear mi corta edad junto a las piñuelas que ya no existen.
Y he fijado mi día a día a la par de las flores de Jalacate
que jubilosas renacen en los campos
desafiando la incesante avaricia humana
que las convierta en un nuevo
paisaje invisible.

Esthela Calderón, born in León, Nicaragua, is a poet and visual artist. Her books include the pioneering book of ethnobotanical poetry *Soplo de corriente vital* (2008), *Coyol quebrado* (2012), the bilingual anthology of her selected poetry *The Bones of My Grandfather* (2018), and *Colmena de papel /Paper Beehive* (Poetry and painting, 2022). Her poetry has been anthologised in *The Mind of Plants: Narratives of Vegetal Intelligence, Ayahuasca Reader: Encounters with the Amazon´s Sacred Vine, El consumo de lo que somos: muestra de poesía ecológica hispánica contemporánea*, as well as *Ghost Fishing: An Eco-Justice Poetry Anthology, The Latin American Eco-Cultural Reader, Naturaleza poética* and *La poesía de los árboles*. Her work as a visual artist was featured in individual exhibitions at the art gallery of the Municipal Building of St. Lawrence County in Potsdam, New York: 'Inside the Ancestral Current' (2017) and 'Pollen' (2019). Her group exhibitions include SUNY Potsdam (2017) and the Brush Gallery at St. Lawrence University: 'Here and Now: Three Artist' (2019) and 'Listening to Water' (2023).

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Steven F. White has edited and translated anthologies of poetry from Nicaragua, Chile and Brazil. He translated Federico García Lorca's *Poet in New York,* Pablo Antonio Cuadra's *The Birth of the Sun and The Angel of Rain* by Gastón Baquero. He is also the co-founder of the website *Microcosms: A Homage to Sacred Plants of the Americas.*

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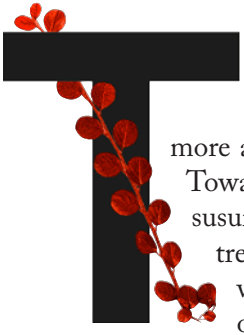
Noelle King

The Frost that Touches the Bark and Goes



This is a complicated conversation. There could be pines, or spruce, larch, tall tamaracks or even alder or ash. Neither shagbark maples nor the plated sycamore are excluded; everyone of the sylvan world is invited. Towards the edge of winter, in early morning, it is the first susurration, silver and white. The frost speaks with the trees. It is sifted on the fissures of the bark. It prints with small crystals the topic of the day across the skin of the forest. This is a tenderness of advection, of wind and water, of soft rime.

Some call it white frost, or givre. It's a kind of whisper through to the cambium, telling of the refractions and alignments of the cold sparkles that slow down, slow way down to suspend time in ice. Close to winter all the planes align in ice, but the ice is temporary. The trees stand listening. The main topic is structure: the language transpicuous.

This whited painting of the forest is erratic, not predictable. There might be frost arrows arrayed like an explosion across the skin of beeches. There might be radiant frost splayed across hornbeam, across witch hazels. It forms early on the rhytidome of maple, birch and poplar. It becomes a minute landscape of valley and peak; everything covered

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with diamonds of the morning. If you are careful, you can hear the lenticels breathing in the most delicate of mists.

Later the meandering of the light will dissipate the hoar. The bark will glisten and then go flat in the day. It was one of those conversations that can only happen early and outside, it cannot be captured. The spicules of frost drift off; they do not remain.

The bark will sigh and expand. This is the frost that touches the bark and goes.

Noëlle King is an artist, writer and college professor practising in New York City. She graduated from University of California at Berkeley (B.A.), Columbia University (M.A.), School of Visual Arts (M.F.A.) and the Rhode Island School of Design (C.E. Drawing and Painting Studies). Her work has been shown at numerous museums and galleries both in the U.S.A. and Europe. Her work and record of exhibitions can be viewed at www.noelleking.com.

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Peter Larkin

Trees as Lived
(Some Retorting Legends) (2022)

massive vanishing that remnants not finding their displace-
ment haunt the native sacrilege
until flushes of niche frequent the canopy

Well-confined islands, common colonisers
small stands against no other woodworld
how bark wedges itself onto humanscape

Essential projection if trees are to become ancient
few insistences slower than old trees

Accrued niching at bodged clearances
an irreplaceable is sapping human speeds

Invasive afforestation, lodge it with pines, engross the uplands
nothing sparse about the correctness offered its pole pressure

Any tree-total upland is tireless, swathed in indurate spoil, horizontal
furling, sitka comprehensives

Geometric blots, felled or poisoned for exotic replant
locust years (yields) leaching the ancient woods
simplest shapes pay on distant funds

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Too young for wildwood or semi-ancient remnant, squarely a distinctive
teeming?
Are there any late promises for these plants?

Saplings holed-in graduate no forests
busily enmeshed in an unremoved unthrived network

Tree damage itself key stowage for curdling the web, such reinforced
threads strung into repointing their breach marks
drag an incantation across its ecological ceiling

As emergent trees chip out our repression creases
create a city of their markings as remission of seize

As hedgerow commutes, clump replete, seeking a rate of tree *outside* the
woods
surviving as timber, reviving in pollard
serves (calls at) what is no longer husbanded

stitched by us, patched by nature
tab-edges between the farmed slabs: however a woodful additive,
befits shelter

cracks and edgelands a justified elsewhere, filtering in the midst of
dilating like for like

Homicidal air locks onto trees, at net weight of carbon
strict riddance of forest in blossoming streetly aside

Block planting at its default position
equity is most of the least, ensuing scarce verticals
farming tree as public good/s
urban forest retrofit

As the generic cellulose factory speaks cheap land, locality deficit, less a
neighbourhood than its own notionals
Then to scatter a copse at its join-ups, the more social its scarcities,
the more frond-like its secretions

The empty song-shock of *not* encountering a tree
forest echoes follow the flatter rumble of baffled townscape

Life isn't muted enough to faint before all its details, leaf-lendings, edge-plummets

A quotient of symbols as altered image, the danger-range of emphatic statics

Hint of oak roof is marking with suburban spraint, there was always sufficient hutting until the wooden became its own excess structures

No rougher supertide than a surface's reverie of buried conservation, striating its dust
live chainsaw culture climbing trees, an impactive speckling of species

Walk a grove through a welter of woodland
where arrivals are monitored and wrapped
newly aproned into extension

Play wild lime where it stood
a scarred towards, a lesser as at last forewarned

Stunted, instantiated, post-solo stress redolent of trees at rest

Expressive forest at the toe of ancient tree
a tumble of assent, assignation, reception, within a single throw

Pervaded (circuited) before any surface annunciation, the eruption event then has no need to break out for cover

What is the character that enters a wood as that wood's own unsown persona?
then ranged, assailed, at every available tree-height

Take a cut from forests flourishing?
the languishing clearfell furniture
until the woods fulfil different weeds

Buffeting and sinking woods where graspable
to relieve their core interior, rebestow their corridor files

What else might haunt trees other than our epic scale?
as forest sores to carbon stores

Grown as if (to be) last, it escapades its own exhaustion

What stunts at the figures of juicy trees, a sap of all surges at the stripped bark

Compact browsing forever ankle-high, a taste of arrested development, perpetual self-identical renewal, surrender of the reach

Tender green argues specific pasts, tests (grains) the subtler proofs if any web of causation stands to every least consequence

A barrage of stress, that it rubs out puckers of instress, knotty intrication not yet couplings, underseam ripples

Leave at its loneness how hollow trunk synchronises with stag head
woods continue their cycle on the most difficult ground

There is an increment how trees are put by for a decade, a quota of anterior consideration, narrative of a rerooting at loss

Not every wood needs a great habitat industry dense and dark may shed some diversity but go pastoral at the edges of asperity

The worn scrub its own exhaust against super-use turbulent garb

Proforest, entire sports of tree initiative
instinctive gaps, continuous interlude: or *implanted* tree would already be on its damage slant

Silvo-arable, silvo-pastoral, alley-cropping beside browsing blocks
ahead of the retro-planted, its surrounding seed sources
At a stitch of tree entwine the shoots of local faction, itself a
decompaction

Landscape services redesired, as recompiled under unequivalent trees

Closest vent at the tree-closet, its breathed leaf at more than singles
attributed particles it signals

Expand if it thins
more diverse onto its adjacencies, distinctive assemblages, these effi-
gies invoke a healing parody, prayer-rooms of nested induction
for the urging climate, aspen, oak, hornbeam, lime

Peter Larkin contributed to *The Ground Aslant: an Anthology of Radical Landscape Poetry*, ed. Harriet Tarlo (2011). A symposium on his work was held at Warwick University (UK) in 2018, the proceedings of which appeared in the Journal of British & Irish Innovative Poetry. Among recent collections are *Trees Before Abstinent Ground* (2019) and *Encroach to Resume* (2021). A set of 100 two- to three-line poems, *Sounds Between Trees* appeared in 2022 from Guillemot Press. His newest collection is *If Trees Allay an Earth Retrialling* (Shearsman, 2023).

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Anne Elvey

Serenade for the Eucalypt Outside Number 85

o you not sense my admiration
when I purpose my walk to go by
your address? Could I decribe these

colours you deploy, had I the skill?
They are water in bleached wood
streaked bare with green that pinks,

a faint blue fragile as egg's shell,
grey that goldens this scratch of
bark, held to fall but lifting

into dusk when sun picks out
each detail of your leaf & bough
in rose gold blush. On the best

days, rain turns your trunk to
mauve and lemon lineages of style.
Your slenderness aims upward

to spread of limbs. You outreach
the house. Canopy's open lace
of lance and arm accords itself

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to your hidden roots. They search
out water, keep conversation in soil
with fungi and mites. You make light

shimmer with self. Painterly, your
bole shifts according to weather
in hues that shine and slow my pulse

while joy quickens towards you.
Beyond allegory for any other
lover, you are your most becoming.

Anne Elvey is a poet and researcher living on Bunurong Country in a bayside suburb of Naarm/Melbourne. Her latest poetry collection is *Leaf* (Liquid Amber Press, 2022).

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https://sunglintdrift.com

Glen Phillips

In a Landscape (1948) (Tribute To John Cage)

ryandra country, where each parrot bush
fires up, proud as lunar rocket countdowns,
you see its be-whiskered pale cream blooms:
florets that will never make it to the moon.

In the measured program of your youth
your days may well ascend like slow notes
played on an absent toy piano in rooms
darkened. This is real numbat country,

Where leaf-litter and fallen wandoo bark
mask the scurrying tiny feet of the fleet.
Even the western greys will bound
more quietly, reverently here, I think.

Walk on past mallet and powder bark,
past wilga ochre pit, abandoned rail
line, but salt has risen in the streams,
nearby towns are dying on their feet.

In this landscape of farms and roads
of gravel, the great granite domes
are rural aureoles of weathered stone;
and curlews call in a darkening sky.

December 2022

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Notes

Parrot bush – local name for the dryandra plant (*Banksia-dryandra acuminata*)
Numbat – small marsupial and animal symbol for Western Australia
Wandoo, mallet, powder bark – WA trees
Western Greys – WA species of kangaroo
Wilga – red ochre.

FIGURE 1
Watercolour of Western Australian bush by the author

Professor Glen Phillips BEd (hons), MEd, PhD, is a WA poet and painter, born 1936 in Southern Cross, outback Western Australia. As a career academic, he is Director of the Centre for Landscape and Language at Edith Cowan University, Perth and has served in Humanities and Arts at the university and its predecessors since 1962. He was a guest poet of the 2019 WA Writers Week for a public release of *In the Hollow of the Land, his Collected Poems, 1968-2018*. He has now published more than sixty books of poems in Australia, China, the USA, Italy, UK and Thailand and two books of short stories. Twice President of Fellowship of Australian Writers, he served twenty years on its WA executive. Glen co-edited the FAW and Katharine Susannah Prichard Writers Centres anthologies and many others. A prize-winning poet, he was a founding Director of the WA poetry reading group, 'Poetry in Motion' and performed in Europe, USA, Asia and on the ABC TV, ABC Radio 'Poetica' series and SBS and community television stations. He is a life member of three Writers Centres in WA and current Patron of the K.S. Prichard Foundation. His poems have been translated into Chinese, Italian, Spanish, French and many more of the world's languages. As a landscape painter, his most recent exhibition of landscapes was in Shanghai, November 2023.

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Book Reviews

Christian Keeve

Stella Sandford.
Vegetal Sex: Philosophy of Plants

London: Bloomsbury, 2022
ISBN 9781350274921 (HB) 256 pp

tella Sandford's *Vegetal Sex: Philosophy of Plants* invites readers into the problematics and possibilities of relation through vegetal life. Sandford's approach sits with the histories of western botanical and philosophical traditions to shed light on the ways in which plant sexuality has been conceptualised, hoping to cultivate a more generous approach to plant philosophy. I read this text as a political ecologist and multispecies scholar interested in the often-queer vegetal politics of production and reproduction and, like Sandford, what those politics may reveal about the question of the human. Sandford investigates how sex has been characterised and understood in the history of botany; why animalistic metaphors have dominated these understandings; and how a turn to plant perspectives invites the deeper question that grounds the text: *What is sex* in the first place?

Vegetal Sex thinks philosophy with plant science, historicising both disciplines as intertwined approaches to understanding vegetal life. Histories of western thought are paired with analyses of the discourse of vegetal sex in scientific and popular literature, ending with a discussion of the ways in which Indigenous philosophies of vegetal relations may provide the tools for better understanding what Sandford references as the failure of Western metaphysics to account for vegetal life. In doing so, Sandford urges a stronger critique of the dominance of the animal

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model – including zoocentrism and anthropomorphism – arguing that more careful attention to a plant philosophy that 'grows in the cracks of botany' (p. 29) is needed. Further, that discussions of sexuality from the perspective of the 'radical alterity of plant life' (p. 14) – incommensurabilities and all – can open spaces for deeper understandings of sex, sexuality and gender across species and life forms.

The text reads like an extended meditation on the intertwined histories of western botany and philosophy, ending with fruitful meeting points between western anthropological thought and Indigenous philosophies, not to seek answers to but to expand the questions of subjectivity, humanity, care and connection. Sandford's somewhat recursive writing style keeps one invested in the central questions and motifs of the text as she moves through the details of conceptual shifts in understandings of plant life at different historical and intellectual junctures. The introduction raises the central contradiction and concern, that of zoocentrism in conceptualisations of vegetal sex, and the promise of plant philosophy. The first chapter delves into this discussion of plant philosophy, as a turn away from and critique of plant advocacy, moving through the peculiarities of plant life – including sensing, modularity, intelligence, plasticity, individuality, and the ambiguity of life and death – emphasising how the radical alterities of plants are a challenge of and contribution to Western metaphysics. Chapter 2 takes it back to Aristotle to think through plant sex in the Western philosophical tradition, introducing the importance of thinking critically about the role of analogy in the differences between plant and animal being. The third chapter thinks the histories of scientific botany and western philosophy together to investigate shifting conceptions of the metaphysical classifications of 'male' and 'female' for plants, which the following chapter builds on, tracing the shift from analogy to identity in the writings of Camerarius, Vaillant and Linnaeus, and the resultant ambiguities between literal and metaphorical understandings of vegetal sex, as well as the blending of male and female with function, organ and individual.

From there, Chapter 5 makes a turn toward the sexed terminology in scientific literature – including popular communication – as well as deviations from strict meanings. Here, Sandford engages with the dibiontic life cycle (the alternation of generations) to more fully display the complexity of the issue with identity and metaphor as it pertains to vegetal sex – notably through the re/locating of sex and

sex cells – landing on discussions of more relational, community level epistemologies of vegetal sex. The sixth chapter returns to the rigorous conceptual discussion of the politics of 'male' and 'female' for plant life and the possibilities of alternative vegetal community formations through engagements with the maternal botanical imaginary, mycorrhizal networks and Indigenous philosophies, thinking with Kimmerer and Turner, as well as Viveiros de Castro's offerings of perspectivism and multi-naturalism as points of synergy and possibility. Finally, the Epilogue seeks to tease apart homology from analogy and sex from sexuality in order to find common ground for a more generous discussion of vegetal sex – one that acknowledges the analogies and similarities as well as their limits, cultivating a landscape of futurity and possibility for plants and animals alike.

The conceptual review of plant advocacy and plant philosophy that opens the text would speak well to an environmental humanities or even science communication classroom, while much of the discussion in the central thrust of the book would be generative in an undergraduate history of science syllabus. The thinkers of the Western canon are presented in an accessible and straightforward way that Sandford uses to illustrate a historical progression of key conceptual touchstones. The insistence on the role of philosophy would also enliven discussions of the epistemologies of Western science and the ways they ghost through present day botanical discourse. The conceptual work toward the end of the text would work well for graduate seminars seeking to constellate between multispecies relations, vegetal politics and queer ecologies, especially in ways that seek a more open, critical discussion of the nonhuman.

Where this text shines is in Sandford's insistence on its central motif – how an investigation of vegetal sex, from the question of what it means to be a plant, leads to the more fundamental question of what is sex? And what work is being done with and by sexed terminology as deployed in scientific and philosophical discourse. Sandford is careful to map out these differing conceptions of male and female as they've arisen at different historical junctures, including the sexing of entire plants, the sexing of plant parts, the sexing of plant behaviour and the sexing of the perceived metaphysical orientations of plants (or parts of plants) at different points in their life cycles. Concepts like male and female become conceptually unbound and instead resemble a patchwork of possibilities, orientations and processes in the reproduction of self and community, as

well as a relational way through which organisms can situate themselves among larger multispecies landscapes. This is supported by a rhetorical emphasis on holding space for radical alterity and incommensurability across multispecies worlds. As Sandford asks, 'But what if the freak is normal? What if the neat typology is the problem?' (p. 124), and further 'What if, when both animals and plants are sexed, 'sex' becomes a wholly other thing?' (p. 153)

The radical otherness of sex comes to function in this text as less a point of study and more an invitation to indulge in the possibilities of being and relating with self and with multispecies community, and it is here that I was left wanting a more rigorous political analysis. The power relations of masculinity and heteronormativity in the discussion of western plant thought – whose words are recorded, whose conceptualisations are remembered, whose ideas end up influencing botanical research centuries after the fact – are always ghosting in the background when not brought to the forefront, notably through Linnaeus's notorious marriage bed analogies. Yet this discussion could be enriched by a sustained analysis of these power relations and how they may also shed light on the knowledge politics of which forms of plant knowledges get canonised, how Indigenous knowledges are taken up (or not), and the political possibilities that may emerge.

If, as Sandford argues, the anthropomorphising of vegetal sexuality shows 'nothing at all about plants but quite a lot about humans and their dominant gender and sexual ideologies' (p. 159), then the opening of a more generously vegetal sex can also provide a more radically alternative set of human possibilities for, and politics of, relation: a human sex that 'also just is, without the burden of any ought' (p. 160), an approach that 'would not be to deny the biological reality of vegetal sex as a human species trait but to affirm the psychosocial and historical determination of our sexed and/or gendered identities and to accept their open futures' (p. 161). We could all stand to be a little gayer in our scholarship as well as our lived multispecies relations, and a deeper engagement with radically queer human politics might benefit this discussion. Opening the door to an embrace of freakishness and deviance through vegetal sex should also come with a stronger engagement with histories and presents of non/normalcy – of bodies, relations, and lifeways – as an often-violent political tool. Holding these in tension may make radical new politics – human and nonhuman – possible.

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Jared D. Margulies. *The Cactus Hunters: Desire and Extinction in the Illicit Succulent Trade*

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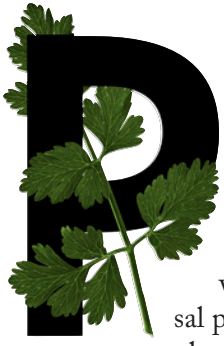

lants move. Botanical science has taught us that plants expand their biogeographical range through different dispersion methods. Usually in the form of seeds, plants' motion is facilitated by animals or the currents of wind. One of plants' most important dispersion mechanisms is anthropochory, when humans act as vectors of long-distance dispersal processes. In this book, Jared Margulis shows us how plants travel worldwide due to their unique interactions with the deep unconscious human world. Focusing on plant collectors' desire, *The Cactus Hunter* offers a fresh perspective to understand the mechanism that, ingrained in the minds of Anglo-European and Asian collectors, has pushed some species of cacti and succulents to local extinction – despite regulations that try to impede this illicit mobility of plants.

To reveal the connections between the human psyche and the extinction of plants, Margulies takes the reader on a long trip encompassing Brazil, Mexico, the United States, England, Czechia and South Korea. Studying the illegal movement of plants, the book focuses on the idea of mobilities, which resembles the mobility of the Matsutake

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mushroom explored by Ana Tsing.[1] In *The Cactus Hunter*, we travel with the author to meet diverse succulent enthusiasts who act at the edge of what is considered 'illicit' or 'illegal'. By 'following the thing' as a research methodology, combined with human-plant ethnographies, we are immersed in the human side of succulent looting and how this illicit activity becomes difficult to control under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Thus, through a vivid narrative, Margulies introduces us to a series of characters such as collectors, taxonomists, semianarchistic and enthusiastic retirees; all of them linked to the collection, looting, study or protection of succulent plants. Soon, the reader discovers how the interactions between these human-cacti characters usually occurs at the blurred edges of legislation and, more importantly, is highly complex.

To understand these complexities, Margulies primarily draws on a Lacanian perspective. Form this framework he supports his argument revolving around how the 'lootability of succulents' have turned them into objects of desire (p. 4). Then, the author introduces us to the motivations that make people become plant collectors. To do so, he stresses how collecting plants is not the same as collecting inanimate objects. Living elements such as cacti demand more 'hands-on' practices of care (p. 29). The relationship between collectors and their plants then is mediated by care, which, in turn, reveals emotional ties with plants, often emerging in distant feelings rooted in the collector's past. The act of caring is reflected in how collectors organise their collections. Organisation and classification are two important recurrent topics in this book, mainly because the discovery and naming of a new species by taxonomists creates missing 'object' in the cabinet of the collectors, igniting desires and extinctions (p. 102).

After introducing the reader into the world of cacti collectors and classifications, the author focuses on the experience of what he calls the 'cactoexploration' (p. 69). These are largely explorations to remote and biodiverse areas in the Global South performed by men from the Global North, who are in search of rare species of cacti to feed their private collections. These explorations, rightly recognised by Margulies as situated in long-lasting colonial dynamics, embody the encounters between

1 Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015).

collectors and their illicit desires. Here, the reader faces another element common in the book: the central role of the author's experience as part of the narrative. In this case, Margulies' encounter with *Uebelmannia buiningii,* a cactus he portrays as close to disappearing, works as an argumentative line to interrogate how the particularities of the cacti seed trade is inserted in blurry legislation under CITES (p. 83). This is especially important because the act of extracting seeds devoted to greenhouses on the other side of the world is seen by many collectors not as an illegal action, but as a part of a conservation strategy.

The illicit trade in cacti takes the reader to Czechia. There, we witness the rise and establishment of this country's devotion to cacti and the reasons which made Czech enthusiasts highly skilled cacti propagators. We learn that this is a consequence of the limitations imposed during the Soviet era. Communism made it difficult to access certain plants, propelling desire because, as Lacan explains, 'Lack conjures desire' (p. 131). Conversely, on the other end of the political and economic spectrum, 'capitalism hijacks desire' (p. 159). In the realm of plant collectors, overflowing desire might lead to overcollection and, thus, to possible extinctions. At this stage, the reader is confronted by a singularity of the psychoanalytic perspective of this book: if desire is capable of producing extinction, desire is also capable of producing anxiety about such extinction. To explain this, in chapter four, the author puts his experience at the centre and invites us to reflect on extinction in the capitalistic world (the Capitalocene). Using the anecdote of his encounter with *Arrojadoa marylanae,* an endemic Brazilian cactus growing in a mining area devoted to exploitation, the author self-examines his extinction-related anxiety, which he labels as a psychic cost of extinction (p. 159). Analysed through Lacanian eyes, we learn that anxiety arises when desire becomes impossible: in this case, the desire for organisms not to disappear. Importantly, the self-reference of the author's expertise is accompanied by a recognition of his 'Loci of enunciation', which Mignolo and other Postcolonial scholars have been insisting should be present in any interpretation of the world (p. 182).[2]

2 Walter D. Mignolo, 'Epistemic disobedience, independent thought and decolonial freedom', *Theory, Culture & Society* **26** (7–8) (2009): 159–81, https://doi.org/10.1177/0263276409349275

After chapter four, the travel through the illicit world of cactus collection undergoes a turn. Margulis abandons the cactus and now focuses on two succulent plants, *Dudleya farinose* and *D. pachyphytum,* and their extraction from the wild by South Koreans. In contrast to the previous sections, which had a certain degree of narrative independence, the last sections are concatenated. They follow a sequence of events that guide us through the author's encounters with an armed game warden from the California Department of Fish and Wildlife, elusive fishermen in the Isla of Cedros in Mexico, and nursery owners in South Korea. In a kind of detective-like plot, the author 'follows the thing' to Korea, seeking to elucidate the rationale that ignited the desire for these plants among Asian collectors. There, we learn how mass media in USA have distorted the narrative linked to the looting of this species whereby Asian housewives and millennials are framed as the culprits. However, this interpretation proved to be based on stereotypes in what Margulies names an 'Asian super consumer myth' (p. 281). Instead, the author shows that desire for these plants is triggered by their cuteness and how, through cuteness, *Dudleya* species turn into living capital at work (p. 291). In the final chapter, the author returns to the extinction reflection, stressing a common point of the book: the encounter between collectors' desires and legal frames takes place in grey areas full of ambiguities, misinterpretation or lack of interest. These vaporous interactions have shaped collectors' behaviours while pushing different species towards the cliff of extinction.

In *The Cactus Hunters*, Margulies puts the multitemporal and diverse nature of plants at the centre of his analysis. In doing so, he brings emerging ideas in the field of more than human geography, critical plant studies, human-plant ethnographies and plant humanities to the field of conservation. Aligned with the perspective of a plant-centred narrative presented by authors such as Hall,[3] this book provides detailed evidence that shows how the illegal trade of plants deserves the same attention as animal poaching practices such as the rhino horn trade. However, like the skills needed by anyone aiming to transplant a thorny cactus, this book might present some difficulties for readers who are not familiar with psychoanalytic ideas. The author uses psychoanalytic ideas

3 Matthew Hall, *Plants as Persons: A Philosophical Botany*, SUNY Series on Religion and the Environment (Albany: State University of New York Press, 2011).

from Lacan (and eventually from Freud) as a thread to join the theory with the empirical evidence; nevertheless, this is unevenly stitched in places. Rather than a flaw, this intermittence of psychoanalytic references strengths the narration, making key sections of the book easier to navigate for non-experts in psychoanalysis. Finally, colourful illustrations of the represented cacti and succulents would have added more detail and engagement to the discussion. Colours, as the author mentions several times in the text, work actively in the creation of desire. In spite of this, this book is well-organised, with a fluent concatenation of facts; the author shows a remarkable narrative capacity and great erudition. With this book, we understand how, as some plants symbolically take root in our desires, at the same time, they slowly unroot forever from their native soil.

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