

Speaking Resurgence to Despair: Multispecies and Forest Ethnography in the Anthropocene

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Abstract

Human activity has had such a profound influence on the planet that we have entered a new and distinct geological period, one which scholars have begun to call the Anthropocene. Accompanied by the looming figures of global climate change, ecosystem collapse and the Earth's sixth mass-extinction event, scholarship of the Anthropocene points to a precarious and troubling future. However, instead of succumbing to cynical catastrophism, if we can productively engage with the Anthropocene and its challenges, there is much that it can teach us. One of the approaches most aptly poised to respond is Multispecies Ethnography, with its conceptual repertoire of symbiosis, collaborations and disturbance. By de-centring the human from its privileged position, the turn to Multispecies Ethnography embeds humans within the complex naturecultural assemblages that we have always been a part of. Only by seeing ourselves in terms of these worldly entanglements can we come to terms with the Anthropocene.

In the complex, knotted assemblages of multispecies worlds, we can find no better guide than that of the forest. The forest is the Earth's most prevalent and most productive ecosystem, home to the majority of global biodiversity. The well-being of forests is key to earthly survival for humans and nonhumans alike. To this end, I turn to the ethnography of forests and their human inhabitants, to find an avenue by which to think with the forest and its vast, knotted networks of multispecies relations. Utilising ethnography of the indigenous peoples of the Amazon, of forests at the frontiers of global capitalism, and the ruined landscapes that are left in its wake, I find the hopeful possibilities of cultivating relations across species lines, fostering attentiveness to the lifeways of nonhuman beings, and working towards resurgence, the capacity for forests that were once destroyed to flourish anew.

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Introduction

Human activity has had such a profound influence on the planet that we have entered a new and distinct geological period, one which scholars have begun to call the Anthropocene. Through activities such as agriculture, industrialisation and globalisation, humankind has become the principal driver of global ecological and environmental change. What this revelation means for us and for the world in which we live is not yet certain, but it is clear that this period does not inspire confidence or optimism in those attempting to come to terms with it. Accompanied by the looming figures of environmental disaster, global climate change, ecosystem collapse and the Earth's sixth mass-extinction event, scholarship of the Anthropocene seems to point to a precarious and troubling future. Faced with these ill portents, we are forced to confront how human actions have irrevocably altered the world around us. It becomes imperative that we re-evaluate our understanding of ourselves and our world, given that the two are now undeniably and inextricably interlinked. If, instead of succumbing to cynical catastrophism, we can productively engage with the Anthropocene and its challenges, there is much that it can teach us.

In light of the difficulties posed by the Anthropocene, one of the approaches most aptly poised to respond is Multispecies Ethnography. It is informed by concepts ranging from feminist theory to evolutionary developmental biology, drawing on the work of scholars such as Donna Haraway (2005, 2008), whose companion species transgress the boundaries of the terms kind and kin, Anna Tsing (2015), who traces the rhizomatic sociality of mushrooms through ruined landscapes and across global capitalist supply chains, and Eduardo Kohn (2013), whose work among the Amazonian Runa people leads him to the conclusion that forests think. Turning to multispecies engagements and thinking in terms of symbiosis, collaborations and disturbance makes room for the agency of non-human beings and their

often overlooked social and political lives. By de-centring the human from its privileged position in these relations it becomes clear that, in the words of Anna Tsing, “Human nature is an interspecies relationship” (Tsing, 2012a: 141). Addressing these webs of relations that cross species lines, the turn to Multispecies Ethnography embeds humans within the complex ecological assemblages that they have always been a part of. Only by seeing ourselves in the midst of these worldly entanglements will it be possible to come to terms with the Anthropocene.

When searching for an exemplar of these complex, knotted networks of multispecies relations, we can find no better figure than that of the forest. Both the Earth's most prevalent ecosystem and its most productive, the forest is home to a majority share of global biodiversity. Given the existential threat posed the Anthropocene, this capacity to cultivate the conditions for the flourishing of biological life makes paying attention to woodlands even more critical. In her book *Staying with the Trouble*, Donna Haraway rightly observes that “forest well-being is one of the most urgent priorities for flourishing – indeed, survival – all over the earth” (2016: 71). However, forests are not merely oases of biodiversity. Trees are experts in carbon sequestration, they capture and make use of atmospheric carbon dioxide, removing it from the atmosphere and storing it in the form of biomass. Woodlands also have an important role in maintaining the water cycle and the ability to create and manage their local microclimates. Furthermore, trees and other photosynthesising plants produce oxygen, which is necessary for the continued existence of animal life, and for this reason the Amazon rainforest is often described as ‘the lungs of the world.’¹

¹ Contrary to popular belief, the oxygen produced by the Amazon rainforest does not contribute significantly to overall concentrations of the gas in the atmosphere. The largest net producer of atmospheric oxygen is the ocean, due to the presence of photosynthesising algae. (Ghazoul, 2015: 104)

Dwelling on this image of the Amazon Rainforest for a moment tells us a great deal about how we perceive particular landscapes such as forests. While their dynamic functioning is key to the regulation of our environment, humans tend to see these landscapes populated by nonhumans as passive. Ethnographic studies have often relegated the forest to a largely inert stage upon which human actors, the protagonists of anthropological research, enact the dramas of their everyday lives. In this way, forests are the very image of Nature, which is defined in its opposition to, and existence apart from, the realms of human society. They can, and often do, develop without or in spite of human intervention. It is not characteristic of western societies to afford agency, and by extension personhood, to non-human beings such as plants. Because of this they are seen as unconscious ‘things’, and therefore rendered inert and subject to the control of human agents. The categories of binary thinking which impose these relations of alterity are deeply entrenched in western thought, but they are fundamentally limiting in the face of the challenges of the Anthropocene.

Scholarship has responded to the limitations of these traditional dichotomies, such as nature and culture, nonhuman and human, person and thing, even mind and matter, by bridging these divides. The ethnography of forests and their human inhabitants, such as the work of Philippe Descola among the Amerindian Achuar (1994), gives us an avenue by which to think beyond these binary concepts. More recently, Nicholas Kawa’s *Amazonia in the Anthropocene* (2016) illustrates that even the most ‘natural’ landscapes are neither inert nor independent of the human, something the natural and social sciences have long suspected. Forests are planted, managed, and exploited by humans for their own ends, creating shared histories with deep-roots. In the words of Anna Tsing, “the forest is *social*” (Tsing, 2005: xi). However, this sociality is not limited to the human sphere. Forests are continually created and recreated by vast, knotted networks of multispecies relations. These extend from the

trees that form the forest canopy and the thick bushes of the understory, to the birds and grazing mammals of the forest floor, down to the bacteria and fungi that fertilise and enliven the soil. However, these forest networks extend beyond the bounds of the forest itself and incorporate humans, both directly and indirectly.

Both Eduardo Kohn (2013) and Anna Tsing (2015) look to the forest for inspiration in tracing the intricacies of multispecies kinship and collaboration. Kohn's (2013) ethnography of the forest draws upon the perspectivism of the Amerindian Runa people. Through this lens, the forest reveals itself as a complex assemblage of living beings that itself thinks, in that it takes in sensory information and represents the world for itself. Taking a somewhat different approach, Tsing (2015) traces the matsutake mushroom through ruined forests and global supply chains. These mushrooms live in intimate symbiotic relationships with pine trees, which go beyond exchanging nutrients for food, to linking the forest together through the underground fungal networks of the 'wood wide web'. Tsing's (2015) work also shows us what can happen when we ignore these ecological assemblages. Global demand for timber generates industrial forests, grown as tree plantations. These plantations deplete the soil, create monocultures that are vulnerable to pests and disease, and give way to ruined, blasted landscapes. Unless we can find a way to work with forests and foster resurgence, the capacity to flourish anew, these landscapes are what await us in the Anthropocene.

To this end, I begin by exploring the concept of the Anthropocene, drawing on a range of scholars to form a deeper understanding of the term and its significance, both in terms of its consequences for scholarship in the social sciences and, more generally, what it could mean for the future of our world. Identifying the ways in which the Anthropocene challenges Western binary thinking, I engage criticism of the concept of the Anthropocene, and entertain possible alternatives and their significance, such as the Capitalocene, Plantationocene and

Chthulucene. From here I continue by bringing my understanding of the Anthropocene into conversation with the concepts of the Multispecies Turn, borrowing specifically from the work of Donna Haraway (2005, 2008, 2016), Ana Tsing (2012, 2015) and Eduardo Kohn (2007, 2013). Drawing from the thought of these key scholars is a critical resource from which I hope to find the means by which to tackle the novel challenges posed by the Anthropocene.

Mobilising the concepts and frameworks of the Multispecies Turn, I then turn to anthropological studies of forests. Beginning with ethnographies of hunter-gatherer societies in the Amazon Rainforest, I examine the relations between humans and the nonhuman beings of the forest. Drawing from the work of Philippe Descola (1994), Eduardo Kohn (2013), and Nicholas Kawa (2016), I seek to foreground the forest and its agential capacity, as well as to explore the ways in which the peoples of the Amazon relate to the forest and its nonhuman constituents. Moving to the ethnographies of Ana Tsing (2005, 2015), I investigate regimes of forest management and mismanagement, re-engaging with the existential threat of the Anthropocene and its alternatives, taking seriously the ruined landscapes that global capitalism leaves in its wake. Upon arriving in the ruins, rather than attempting to find ways of living in them, as Ana Tsing does, I attempt to follow the example of Donna Haraway's Chthulucene in "speaking resurgence to despair" (2016: 71). Instead of succumbing to fatalism or cynicism I argue that, taking forests as an example, by cultivating kinship with nonhuman beings and fostering attentiveness to the rhythms of such complex ecological assemblages, we can begin to work towards liveable futures.

Confronting the Anthropocene

The term Anthropocene is originally attributed to the ecologist Eugene Stoermer and the atmospheric chemist Paul Crutzen, (Crutzen and Stoermer, 2000) but the term has been widely taken up by scholarship across disciplinary boundaries (Kirksey & Helmreich, 2010: 549). It refers to the geological epoch which follows on from the Holocene, the warm period following the last ice age. The Anthropocene is drawn from two Greek root words, *Anthropos* meaning human, or what Donna Haraway calls “Species Man” (Haraway, 2016: 48) and *Kainos*, meaning now, or the present moment (Haraway, 2016: 2). The Anthropocene is the human present, a period defined by the presence of humans and by the consequences of their actions. Various dates for the beginning of the Anthropocene have been considered, beginning with the agricultural revolution over twelve-thousand years ago, ranging to the uncannily specific date of 1945, which marks the beginning of the Nuclear Age (Morton, 2018: 43). However, regardless of when it began, the Anthropocene marks the beginning of a period in which human activity has become the principal driver of geological and environmental change. It is made possible by the development of ever more complex technologies and ever more sophisticated science, with noble aims and increasingly dangerous repercussions. The Anthropocene speaks to human endeavours and the onward march of progress, but it also rings of their consequences and failures.

Along with the Anthropocene come a great many dangers, for humankind, for the beings that share the earth with us, and for the fragile state of the world we know. On the global scale, the most pertinent example of this would be climate change. Due to the emissions of greenhouse gases by the earth’s increasingly industrialised populations, human action has already begun to dramatically alter the environment on a planetary scale (IPCC,

2014). Global temperature increases have caused drought and desertification across equatorial regions, while polar and glacial ice are melting at a frightening rate and the world's oceans are becoming increasingly acidic. These environmental pressures, in addition to deforestation and other forms of environmental ruination are hastening the demise of biological diversity worldwide, and it is now believed that we are in the midst of the sixth mass-extinction event in the Earth's history (Ceballos et al, 2017). If human action has these unintended repercussions for life on earth, consequences that threaten the ability of humans to live on the planet in the future, what can the Anthropocene teach us about ourselves and our ways of thinking about, as well as living in, the world?

One suggestion is that the Anthropocene defies our traditional categories of thought, which inform how human populations relate to the world and act upon it. In *We Have Never Been Modern*, Bruno Latour (1993) highlights the fundamental binaries that seem to underscore the thought of western civilisation, referring to the people of the societies in the European-descended Western world as 'the moderns'. Latour's moderns have a particular view of the world that is enshrined in what he calls 'the modern constitution', (Latour, 1993: 32) a set of binaries and contradictions that he interrogates in order to come to his conclusion that "no one has ever been modern" (Latour, 1993: 47). Modern or not, these dichotomies are representative of the western ontology that Eduardo Viveiros de Castro calls "mononaturalism", (Viveiros de Castro, 2004: 466) and Philippe Descola simply "naturalist" (Descola, 2014: 79). That is, positing fundamental oppositions between mind and matter, persons and things, humans and nonhumans, and nature and culture. Latour argues that to produce an 'anthropology of the moderns', (Latour, 1993: 100) you must be able to interrogate and deconstruct these ideas, which is also one of the projects of the Ontological turn in Anthropology (Holbraad, 2015: 15).

Of these dualisms, the Anthropocene most obviously challenges us to think beyond the separation and opposition of Nature and Culture. This radical separation of the human cultural and social realm from the natural one renders nature inert in the face of human activity. In the words of Timothy Morton, Nature is what goes without saying, “something you forget about because it’s just functioning” (Morton, 2018: 26). Whereas, it is human action and sociality that disrupts this ‘business as usual’. This dichotomy mirrors that of matter and mind, where Nature is cast as mindless matter, ready to be shaped by human intervention. However, in the face of the Anthropocene and the environmental and ecological changes that it entails, these clear distinctions become less so. Though it would seem like the Anthropocene subjects the world to the agency of humans, it was not an entirely intentional process. Global warming and the resulting environmental and ecological changes are actually complex responses to human activity, and these environmental pressures are now threatening to disturb human lives and livelihoods. Engaged in this process of mutual influence, human culture and Nature cannot be so separate after all and the Nature/Culture dichotomy collapses into what Latour (1993) and Haraway (2005, 2008) both call ‘naturecultures.’

Collapsing the Nature and Culture divide and thinking with naturecultures also calls the distinctions of human and nonhuman, and person and thing into dispute. The term natureculture is a way of synthesising both nature and culture, recognising that both are inseparably bound by ecological relationships which are both social and biophysical (Malone, 2016). However, thinking with naturecultures requires giving agency to nonhuman actors as well as humans, and understanding how both humans and their nonhuman counterparts come to define each-other. This stands in contrast to the traditionally inert ‘nature’ of the world outside of the human in western thought. In the context of the Anthropocene, if

humans and nonhumans are so intimately interconnected, can they be clearly separated? Can we continue to see nonhumans as 'things' without personhood or agency? Here it is important to note that, even among Latour's moderns in western Europe, this distinction is not as uniform as would be expected. While naturalism is the dominant ontology of these societies, studies in anthropology and science and technology studies (STS) reveal that they are not always quite so naturalist, with particular examples including gardening, pet-keeping and scientific research (Candea, 2012: 36-7).

By troubling the binary categories that separate culture and nature, humans and nonhumans, the Anthropocene calls for the questioning of human exceptionalism. On the surface, this may seem counter-intuitive; The Anthropocene is a geological epoch defined specifically by the presence and actions of man, it puts *Anthropos* at the centre of things. It can be criticised as inherently anthropocentric, perpetuating a view of the world that centres upon and revolves explicitly around humanity which, according to Nicholas Kawa, is "at the root of the current ecological crisis" (Kawa, 2016: ix). It is only by decentring humanity from its privileged position at the centre of our cosmos, that we can begin to understand the Anthropocene. It "should teach us that science and technology have increased only our potential to alter life on the planet, not necessarily our dominion over it" (Kawa, 2016: 131). The work of anthropologists such as Kawa shows us how the environment does not readily accept human control. In the words of Anna Tsing, 'it's not just humans that change things.' (Tsing, 2015: 235) As has already been shown, Nature is not so passive, and it also acts upon human subjects. Donna Haraway responds to human exceptionalism by saying that "no species, not even our own arrogant one... acts alone" (Haraway, 2015: 159).

If the term Anthropocene perpetuates an anthropocentric world-view, in spite of how its challenges force us to go beyond the human, this raises questions over the accuracy and

usefulness of the term. While there is no question that human activity is a dominant force in the Anthropocene, Donna Haraway sees the Anthropocene as less an epoch and more of a boundary event (Haraway, 2016: 99). She suggests that there were many other ‘revolutionary evolutionary ecological developmental historical events’, such as the evolution and spread of seed-dispersing plants, which had far-reaching environmental impacts (Haraway, 2015: 159). Perhaps, instead of defining an entire geological period, the Anthropocene is a one of these events. What is certain is that “what comes after will not be like what came before” (Haraway, 2016: 99). In the face of this uncertainty about the future, under the existential threats of climate change and ecosystem loss, we find ourselves in a precarious position. Precarious in the sense of ‘being vulnerable to others’, which Anna Tsing suggests is characteristic of our time (Tsing, 2015: 20). If the Anthropocene is such an event which leaves us in this state of precarity, it becomes necessary to consider the alternative terms that have been proposed to take its place.

One such alternative is known as the Capitalocene. In a debate at the University of Aarhus, Nils Bubandt described the Capitalocene as the way in which “the ecologies of both humans and nonhumans are being radically made and unmade according to the logics of capitalism” (Latour et al., 2018: 587). Some scholars consider the term Capitalocene to be more representative of the present moment, as it attributes this new era to the profound influence of the global structures of capitalism. Donna Haraway finds evidence of this in much of the discourse surrounding the Anthropocene, citing its “managerial, technocratic, market-and-profit besotted, modernizing, and human-exceptionalist business-as-usual commitments” as the hallmarks of capitalist thought, rather than simply those of human activity (Haraway, 2016: 49-50). As an anthropologist of global capitalism, Anna Tsing sees the Capitalocene as “The history of the human concentration of wealth through making both

humans and nonhumans into resources for investment” (Tsing, 2015: 5). It is able to do this through the process of alienation, in which both people and things become mobile assets by being removed from the complex networks in which they are made. She explains that the promises of these capitalist logics are “followed by lost livelihoods and damaged landscapes”, (Tsing, 2015:18) and that ultimately, “Like a giant bulldozer, capitalism appears to flatten the earth to its specifications” (Tsing, 2015: 61).

The Plantationocene is a term with similar connotations, but it is more specific in that it references a particular technique of aforementioned global capitalist structures. Bruno Latour finds the term Plantationocene productive because “it refers to a certain, historically specific, way of appropriating the land,” and this specificity is perhaps more useful to think with than the immensely varied global structures of capitalism. The plantation is a form of “cultivation through coercion” (Tsing, 2012a: 148) which creates “simplified ecologies designed to create assets...” (Tsing, 2003: 51). This simplification makes complex systems amenable to global capitalism, but does so by killing off beings that aren’t recognized as assets, creating monocultures, and in the process exacerbating issues such as pestilence and disease. Tsing sees the proliferation of plantations as one of the biggest threats to the many living beings on our planet, tracing the ruins it leaves in its wake through the post-industrial forests of Japan and Oregon in *Mushrooms at the End of the World* (2015). Thinking with capitalism allows us to understand the larger structures that are at play in creating the Anthropocene. Furthermore, thinking with plantations allows us to trace some of the root causes of the problems facing us in the Anthropocene.

However, none of these concepts seem to offer much in the way of hope for the future, or even the present. It is in this spirit that I turn to another concept to come out of Anthropocene scholarship, that of Donna Haraway’s Chthulucene (2016). The Chthulucene

proposes a different vision of the era in which we find ourselves, more an approach to living in the face of coming adversity than an attempt to trace its causes and neatly categorise it. Haraway's Chthulucene puts relationality at the centre of things, in the hopes that "Maybe, but only maybe, and only with intense commitment and collaborative work... flourishing for rich multispecies assemblages that include people will be possible" (Haraway, 2015: 160). The term Chthulucene derives from the Greek *khthôn*, meaning something akin to 'of the earth'. It takes its inspiration from the chthonic deities of myth, monstrous in a positive sense in that "they belong to no one... in manifold forms and manifold names in all the airs, waters and places of earth. They make and unmake; they are made and unmade" (Haraway, 2016: 2). Haraway's chthonic beings defy easy categorisation and attempts at homogenisation, and they are responsible for creating complex, knotted networks of relations through what she calls their 'tentacularity' (Haraway, 2016: 32).

The Chthulucene disrupts the smooth functioning of clean distinctions and top-down categories and abandons the miraculous and other-worldly futures of the 'sky gods', such as the Olympiad, the Christian God, and secular techno science (Haraway, 2016: 2). Instead, what Haraway proposes is that we 'stay with the trouble.' Instead of relying on technology and science to miraculously ensure our futures, or giving into the inevitability of ruination, the Chthulucene tasks us to "make kin in lines of inventive connection", particularly across species lines, and in so doing "[learn] to live and die well with each other in a thick present" (Haraway, 2016: 1). Differentiating the Chthulucene from the Anthropocene or the Capitalocene, Haraway takes pains to stress that the Chthulucene is ongoing, that everything is still "at stake, in precarious times", and that "the sky has not fallen – yet" (Haraway, 2016: 55). The emphasis is on making and attending to the kinship relations that bond all kinds of beings in assemblages. To Anna Tsing, the aim of making kin in this way is sustainability, "the

dream of passing a liveable earth to future generations, human and nonhuman” (2003: 51). Whether the dream of sustainability is achievable is uncertain, precarious. However, it is certain that we will only face greater problems if, as Kawa rightly puts it, “we continue to neglect our relationship to others on this planet” (Kawa, 2016:130).

Confronting the Anthropocene forces us to reflect on ourselves, our understanding of the world, and on our place within it. It confounds the binary distinctions between nature and culture, humans and nonhumans, among others, and introduces us instead to naturecultures where humans and nonhumans are inseparably interrelated. While it reminds us of our ever-increasing ability to influence the world around us, it also challenges us to decentre *anthropos* from our ways of understanding the world. Whether or not the Anthropocene is an epoch in itself or merely the boundary event that marks a departure from the old to the new, its lessons are key to moving forward. Engaging with the Capitalocene teaches us to look at the structures that order the human world and the global logics that are at play in remaking the world. The Plantationocene brings us up against the simplification of ecologies and the problems of alienation. However, the present and the future are not without possibility. Haraway’s Chthulucene teaches us about staying present and paying careful attention to our earthly kin, regardless of species. By abandoning both miraculous and apocalyptic visions of the future, we are able to work towards liveable ones. Learning from the Anthropocene and its variants represents a potential paradigm shift. By thinking with naturecultures and networks, by rooting ourselves firmly in the world, as a part of it, and by being attentive to other forms of life, we can begin to work toward a sustainable world.

The Multispecies Turn

Faced with the challenges of the Anthropocene, it becomes necessary to think in terms of naturecultures, to transgress binary categorisations and to look beyond the human, to find ways of creating liveability in the face of precarity. It is also necessary to continue to engage with the histories of human action, and the structures that mankind has created, in order to understand their lingering influence on every scale. However, the question remains how to go about this. In the search of ideas and concepts that can make sense of the Anthropocene and its variants, I turn to the field of Multispecies Ethnography. Multispecies concepts and approaches to the Anthropocene are at home in worldly naturecultures, and they work to decentre the human by affording non-human beings room in their frame of analysis. Recruiting the multispecies turn, and by extension its underpinnings in the ontological turn, I turn to the scholarship of feminist theorist Donna Haraway, particularly her concepts of Companion Species and Sympoiesis (2005, 2008, 2016). Engaging with and building upon her concepts, I enlist the work of anthropologist Anna Tsing, whose multispecies approach traces both the global and the local, nonscalable networks of the Matsutake Mushroom, (2012, 2015) and that of Eduardo Kohn, whose work with the Runa people of the Ecuadorian Amazon informs his understanding of how the forest itself can think (2007, 2013).

The field of Multispecies Ethnography has emerged at the intersection of various disciplines, from anthropology to environmental studies, science and technology studies (STS), and animal studies (Kirksey and Helmreich, 2015: 565). Drawing from the ethnographic method that has long been the methodological backbone of anthropology, the turn to multispecies ethnography seeks to extend the possibilities of ethnographic research beyond its typical, human subjects. The term multispecies is, as Anna Tsing observes, a “stand-in for

moving beyond human exceptionalism” (Tsing, 2015: 162). The goal of the multispecies turn is to explore the emergent, knotted relations of naturecultures, and to cultivate an awareness of the interconnectedness of human and nonhuman lives. Multispecies ethnographers explore the margins and borders of traditional ethnography, tracing complex ecologies of beings that have previously been considered beyond its remit. In doing so, the multispecies turn uses its observations to “radically rethink” analytical categories such as the environment, landscapes, and even what it is to be human (Eduardo Kohn in Kirksey and Helmreich, 2015: 562). This commitment to the radically reflexive re-evaluation of analytical frameworks and concepts links multispecies ethnography to anthropology’s ontological turn, from which it cannot be entirely separated.

The Ontological turn in anthropology is marked by its concern with the realm of ontology, in other words, the study of the nature of reality. Like the multispecies turn, it draws its approach partly from STS, particularly the work of Bruno Latour (Kohn, 2015: 311). It also draws from the work of anthropologists of the Amazon, particularly Philippe Descola and Eduardo Viveiros de Castro. In the case of the latter scholars, they used the insights gained through their ethnographic research in order to reflect upon the nature of anthropological study and its western-derived categories of analysis. It proposes a “plurality of beings and regimes of existence” that go beyond western naturalism (Descola, 2014: 268). However, the term ontology can be problematic in the discipline of Anthropology. To some it comes too close to seeking ‘ultimate truths’, while to others the proliferation of ‘ontologies’ signals that the concept is merely a synonym of culture, a concept that is not without problems of its own (Venkatesan et al. 2010). However, in spite of these potential pitfalls, the ontological turn has been important because of its ability to disturb previously taken-for-granted assumptions at the heart of western thought, such as the divide between nature and culture (Descola, 1996:

82). In this way, the ontological turn and the multispecies turn are intimately, if not inseparably, linked.

Another key influence in the rise of Multispecies Ethnography is the feminist scholar Donna Haraway, whose alternatives to post-humanism bring her closer to the realms of ontology than she may care to admit (Kohn, 2015: 316). Haraway's project is heavily influenced by feminist theory, which she sees as responsible for "understanding how things work, who is in the action, what might be possible, and how worldly actors might somehow be accountable to and love each-other less violently" (Haraway, 2005: 7). To Haraway, typical approaches to post-humanism do not manage to escape the influence of Bruno Latour's modern constitution and the dichotomies of nature and culture, human and nonhuman (Haraway, 2008: 9). Instead, she sees the world as "a knot in motion" (Haraway, 2005: 6), continually co-created and "made flesh in mortal naturecultures" (Haraway, 2005: 100). Haraway's thought refuses simple binaries and universal categories, preferring to transgress their boundaries in order to grasp the messiness and interrelatedness of things. She sees collaborations across difference, specific encounters with their own particular historical foundations, and mutually co-constructive relations between beings which make life possible for all those involved. It is in this vein that Haraway proposed her concept of companion species.

Both *The Companion Species Manifesto* (2005) and *When Species Meet* (2008) centre on the concept of companion species, a kind of kinship claim that goes beyond the ordinary realms of euro-centric social categories. Haraway describes this concept in the context of her relation to own her canine companion, Cayenne Pepper. Companion species come to define each-other fundamentally in their relating, through a process that Haraway calls 'becoming-with' (Haraway, 2008: 19). In her texts, "dogs are not an alibi for other themes; dogs are

fleshly material-semiotic presences in the body of technoscience. Dogs are not surrogates for theory; they are not here just to think with. They are here to live with (Haraway, 2005: 5), Haraway urges us to take her relationship with Cayenne Pepper seriously, as she knots them both together through thoroughly mutual processes of co-evolution, seen only from the human perspective as domestication. However, there is no reason to draw the line at companion animals such as dogs. The concept is equally adequate to describe life forms as diverse as “rice, bees, tulips, and intestinal flora,” all of which, in their own ways, make human life what it is (Haraway, 2005: 15). Companion species are interdependent, and these relations of interdependence are what make life possible in both human and nonhuman worlds (Haraway, 2008: 19).

Haraway draws this understanding of biological life from her knowledge of biological science, making particular reference to Jane Margulis’ concept of endosymbiosis, also known as symbiogenesis (Margulis and Sagan, 2001). Simply put, symbiogenesis is the hypothesis that multicellular life began due to the interaction of multiple separate organisms, coming together and partially digesting one-another, leading to the creation of new, complex organisms. It is through a kind of symbiogenesis that Haraway’s companion species come to make up one-another, in a physical sense, through mutually constitutive relations (Haraway, 2005: 32). In a play of Bruno Latour’s *We have never been Modern* (1993) Haraway remarks that “we have always been symbionts – genetically, developmentally, anatomically, physiologically, neurologically, ecologically” (Haraway, 2016: 173). From this perspective concepts such as bounded individualism and autopoiesis, the process of self-creation, are simply no longer available to think with. Instead, Haraway proposes we think in terms of symbiosis and sympoiesis, processes of co-creation (Haraway, 2016: 58). This is the essence of ‘becoming-with’, and of the larger worlding processes of Haraway’s Cthulucene (2016). In

the midst of these tangled webs of relationality and interdependence, it becomes possible to cultivate attentiveness to the other living beings of our world.

The anthropologist Anna Tsing was inspired by Haraway's concepts in relation to her own research, particularly her work with the Matsutake Worlds research group on the matsutake mushroom (Choy et al., 2009). In an article written in response to Haraway, *Unruly Edges: Mushrooms as Companion Species*, Tsing (2012) illustrates the fact that "Human Nature is an interspecies relationship" (2012: 141). By following the connections between fungi and plant life, Tsing both unearths the ways in which they are inseparably related to humans through processes of domestication, and the ways in which they are alienated by plantation agriculture. She discusses the potentially disastrous consequences of this alienation, observing that Species interdependence is a well-known fact – except when it comes to humans (Tsing, 2012a: 144). In her later work, *Mushrooms at the End of the World*, (2015) Tsing traces the matsutake mushroom through global capitalist supply chains to the ruins of the post-industrial forests in which they thrive, back to the forest revitalisation efforts of Japanese matsutake scientists. Her work discusses the impacts of forces beyond the scales of the local and global on forests, and by extension their fungal symbiotes, in the precarious world of the Anthropocene.

Tsing comprehends the forest as a 'polyphonic assemblage' (Tsing, 2015: 23). The term assemblage refers to a network of open-ended entanglements made up of the knotted trajectories of a heterogeneous collective of living beings. Polyphony, usually a musical term that describes the existence of multiple autonomous melodies, refers to the ways in which these assemblages are formed by the actions of a great many autonomous beings, which coalesce into a larger, emergent landscape that is greater than the sum of its parts. Tsing explores this concept by tracing the networks made between plant life,

particularly pine trees, and fungal life, that ties entire forests together. Mycorrhizal fungi, such as the matsutake mushroom, burrow into the roots of particular trees in order to obtain food. In exchange, the mushrooms supplement the trees' root networks and allow them to procure vital nutrients that may not otherwise be available. Neither life form would be able to flourish without the presence of the other (Tsing, 2015: 138). However, these fungi also connect with other trees, and other fungi. Together they form a network that is capable of sharing resources and transmitting chemical signals between plants that has been jokingly referred to as the 'wood wide web' (Tsing, 2010: 191). It is only because of the presence of these mycorrhizal fungi that forests can exist at all (Tsing, 2015: 138).

Tsing borrows the terms disturbance and resurgence from ecology in order to conceptualise the ways in which humans and forests relate to each-other. A disturbance is defined as a change in conditions that precipitates further change within an ecosystem (Tsing, 2015: 160). There are many forms of disturbance, from extremes of weather or natural disasters such as floods and fires to the actions of humans and other living things. However, disturbances are not always negative, they can both "renew ecologies as well as destroy them" (Tsing 2015: 160). They are also not exceptional events, disturbance is the normal state of things and there is no harmonious state of nature that exists before disturbance. Humans and forests are "caught in irreversible histories of disturbance," some of which have caused the ruination of entire ecosystems. Others have been able to reassert themselves through resurgence. Resurgence is the miraculous ability of forest ecosystems to grow back after they have been disturbed (Tsing, 2015: 179). The ability of the forest to replenish itself is essential to human subsistence activities such as hunting, gathering and farming. By utilising these concepts, Tsing explores the forces that continuously recreate and reform the complex assemblages of the forest.

Eduardo Kohn also draws heavily upon the complex interconnected structures of the forest in his ethnography *How Forests Think* (2013). While Kohn also finds inspiration in the work of Donna Haraway, his ethnographic work is quite different from that of Tsing. Kohn's research focusses on the Runa people of Avila, Ecuador, and is heavily influenced by the work of other anthropologists of the Amazon, Philippe Descola and Eduardo Viveiros de Castro. Instead of adopting the label of multispecies ethnography, Kohn calls his particular theoretical project the 'anthropology of life' (Kohn, 2007: 3). It is an approach that places "all-too-human worlds within a larger series of processes and relationships that exceed the human" (Kohn, 2007: 6). Instead of coming to understand the workings of ecologies and assemblages, Kohn looks beyond the human to better grasp what defines it. In this particular case, he brings Runa cosmology into conversation with something that could be termed biosemiology. (Descola, 2014: 271) That is, semiology, the study of signs and meaning-making, as it applies to biological life beyond the human. By marrying these concepts, he comes to the realisation that thought, a semiotic process, extends beyond the human. He concludes, "forests are good to think because they themselves think. Forests Think" (Kohn, 2013: 21).

Kohn reasons that forests can be said to think because thought is an intrinsic quality of living organisms, and the forest is alive. In indigenous Amazonian cultures, not just among the Runa, attributing agency and selfhood to nonhumans is common, and it is these kinds of claim which Kohn uses as the foundation of his argument. To Kohn, "ecological relations are not the product of mechanical cause-and-effect interactions among organisms as objects. Rather, they are the product of the interaction of the phenomenal worlds" (Kohn, 2007: 4). In other words, living beings have interiority, a selfhood, a way of representing the world around them in order to respond. Kohn proposes that the self, at its most basic, is "the locus – however rudimentary and ephemeral – of a living dynamic by which signs come to represent

the world around them to a ‘someone’ who emerges as such a result of this process” (Kohn, 2013: 16). In order to describe the assemblages of living, thinking beings that make up the forest, he uses the term ‘ecology of selves’, sketching the “interpenetrating webs that connect, sustain, and create beings” (Kohn, 2007: 7). As in Donna Haraway’s interpenetrating symbioses, and the polyphony of Tsing’s assemblages, Kohn’s ecology of selves is capable of bringing together beings across species lines and working towards liveable futures in multispecies worlds.

Multispecies ethnography makes it possible to begin making sense of the complex, knotted assemblages that characterise life in the shadow of the Anthropocene. Engaging with Donna Haraway’s concepts, Companion Species and Sympoiesis, allows us to understand the mutually constitutive relations that exist between humans and nonhumans. Becoming is always becoming-with, and collaborations across difference are the foundations of life. Anna Tsing’s development of these concepts, through polyphonic assemblages and ongoing ecological disturbance further develop our ability to understand the place of human beings within the dynamic structures of which we have always been a defining part. Finally, Kohn’s thinking forest, an ecology made of living selves that relate to each-other through semiotic processes, allows us to understand how qualities that are normally exclusively human such as thought, intentionality, and agency can be extended to nonhuman beings. This semiotic process allows us to consider the possibility of communication across irreducible distances. What is left to us is to find worldly examples upon which to cultivate, and foster attentiveness to, these relations. Like Tsing and Kohn have done, I turn to the forest as a guide. Forest ecologies are complex assemblages of interrelated, autonomous beings, entangled with human histories of disturbance and exploitation. Forests are the very model of multispecies flourishing.

Forest Ethnography

To quote Eduardo Kohn, “Forests are good to think with,” (2013: 21) and this is particularly true in the context of the Anthropocene. Forest ecosystems are the planet’s most prevalent and most bio-diverse, the model example of a flourishing natureculture. They are evocative of the resilience and vitality of nonhuman worlds, and they both defy and resist the idea of human mastery. Forests are capable of resurgence, regenerating themselves in spite of disastrous disturbances. The concepts of Multispecies ethnography lend themselves easily to the figure of the Forest. Forests are complex assemblages of nonhuman beings of every species, family, order and kingdom. In a state of constant, albeit slow, change and conflict, forests are certainly the domain of the symbiotic, mutually contingent relations of companion species. They are made up of interrelating beings in a state of constant communication, with their own particular kinds of selfhood and agency. The ethnographic eye lends a perspective on forests and the beings that live within them that reveal the worldly entanglements of relations across species lines, but also consider the confluence of these lifeways with histories of human disturbance and global capitalist exploitation. To this end, I mobilise ethnography of the Amazon Rainforest and its indigenous peoples, the Frontier Forests at confluence between local understandings and global capitalism, and the forest ruins that capitalist logics leave in their wake.

The Amazon Rainforest

Due to the ubiquity of forest landscapes, ethnographic work on forests spans the globe. However, as the ‘ideal type’ of a natural forest, the rainforest of the Amazon Basin is an area in which ethnographic work on forests and their inhabitants has been both plentiful and fruitful. Drawing on the ethnography of Philippe Descola, *In the Society of Nature* (1994)

and bringing it into conversation with Eduardo Kohn's *How Forests Think*, (2013) I explore the lives and lifeways of indigenous Amazonian hunter-gatherer peoples. The Jivaro Achuar and the Avila Runa peoples live in intimate webs of relations with the forest and its many beings. They recognise the personhood and agency of many kinds of nonhumans, including deity-like spirits, which call the forest their home. It is by cultivating attentiveness to the lifeways of other beings that the Achuar and Runa peoples are able to live in a state of what is considered by some scholars to be 'harmony' with their surroundings and participate in the complex ecological assemblage of the forest, upon which they depend (Brightman et al, 2012: 1). Harmony, in this case, is a kind of equilibrium created by acting in accordance with the rhythms of the forest, allowing for resurgence and being conscious of the consequences of disturbance.

Both the Achuar and the Runa peoples are animists. Descola defines animism as an ontology which grants non-humans an identical interiority to that of a human, which allows them to behave and create relations as would human subjects. It also allows them to communicate with and understand one-another on a fundamental level, that of the soul. (Descola 2005: 183-84) However, other anthropologists have sought to go beyond this definition, understanding animism as "a way of being-in-the-world... characterised by a heightened sensitivity and responsiveness," (Rival, 2012: 74) which goes beyond personhood and touches upon the necessity of attentive relations across difference between humans and nonhumans. The Achuar see the presence of a soul, what they call the *wakan*, as creating the possibility for agency, personhood and sociality, being an *aent* (Descola, 1994: 93). However, Runa cosmology is what is called perspectivist. The term perspectivism refers to a particular kind of animism, elaborated by the anthropologist Eduardo Viveiros de Castro, (1998: 470) in which nonhuman persons also see themselves as humans from the perspective of their own

phenomenal worlds. Both animist and perspectivist ontologies, communication across species boundaries is possible, but requires communing directly with the soul of another being.

In order to communicate, and therefore establish relations, with non-human beings, both the Achuar and the Runa employ diverse methods. Among the Achuar, people communicate unidirectionally with other beings through the use of *anent*. *Anent* are particular kinds of speech, Descola likens them to incantations, with the ability to penetrate a being's outer body and reach its soul (Descola, 1994: 199). Those who know a great number of these incantations are called *anentin*, and this status is not restricted to a particular age or gender. However, those who know these incantations often keep them to themselves as they are a desirable asset (Descola, 1994: 198). Kohn does not observe the use of these kinds of incantation among the Runa, who instead make use of shamanic practices, such as the use of hallucinogenic drugs, to induce altered states of perception that allow them to traverse species boundaries (Kohn, 2013: 142). Another method of cross-species communication that both the Achuar and the Runa share is that of dreaming. To both the Achuar and the Runa, dreams are a privileged form of communication, made possible by the fact that, during sleep, a person's soul is free to leave its body and commune directly with those of others (Descola, 1994: 93; Kohn, 2015: 140).

Communicating and navigating relations with other kinds of beings is of vital importance to indigenous Amazonian ways of life. Whether it is finding ways to relate to particular prey animals, and therefore hunt them more effectively, or coming to an arrangement with the spirits of the forest in order to ensure safety and success, both the Runa and the Achuar share this imperative. While the Runa see the spirits in ways analogous to human beings, and their realm as separate from ours, (Kohn, 2013: 178-9) the Achuar

perceive the forest itself as the cultivated garden of the spirit Shakaim (Descola, 1994: 220). In these Amerindian cosmologies, spirits exercise the same kind of privileged relationship with humans as humans do with other animals. They shape the world in ways that are beyond human understanding, but they can also be communicated with and related to. The Achuar make certain concessions to the spirits they call 'game mothers', spirits who are at once guardians and hunters of their patron animals, in order to hunt effectively (Descola, 1994: 257). Breaking the rules of these tacit agreements, by disrespecting the body of an animal or hunting to excess, runs the risk of provoking the spirit and potentially becoming its prey (Descola, 1994: 258).

The attention that the Achuar and Runa devote to the supernatural entities of the forest both underlines and compliments the ways in which they comprehend the agency of the forest itself. By only hunting within a certain threshold, and only gathering as much from the forest as is appropriate, these peoples, particularly the Achuar, are operating in a way that would seem to westerners to be underutilising the resources at their disposal (Descola, 1994: 310). Descola observes that the Achuar also 'underutilise' human labour, instead of striving to be as productive as possible they seek to exist in state of equilibrium they call *shiir waras*, a phrase which means something akin to 'the good life' (Descola, 1994: 308). This mode of living has a kind of sustainability as its objective, and it belies a deep understanding of the rhythms of forest. By creating as little disturbance as is necessary, and allowing the environment to replenish itself, the Achuar find a way to live that is attentive and respectful to the ecology of the forest. This can also be observed in their forest management practices, as the Achuar are what is known as "pioneering swidden cultivators", also known as slash-and-burn cultivation (Descola, 1994: 136).

For the Achuar, choosing a site for a new swidden, in which they will build a new home surrounded by cultivated gardens, is no simple task. Potential sites are surveyed for their resource potential, often by male members of the household. They prefer to use areas of the rainforest that have not been cultivated before, (Descola, 1994: 136) which is often possible due to the small size of their communities. The Achuar will not attempt to settle in an area that shows signs of prior cultivation, referring to it as *tsuat pantin*, clear garbage (Descola, 1994: 137). Descola elaborates that clear garbage refers to specific conditions of such an area, clear refers to the amount of light that the canopy lets in, and garbage denotes the dense undergrowth of such an area that makes clearing all but impossible. Even after thirty years, the Achuar can distinguish old swiddens from old-growth forest by the absence of large trees and rotted wood. However, eventually even the Achuar become unable to differentiate between secondary growth and the foliage of virgin forest (Descola, 1994: 138). The Achuar's ability to differentiate undisturbed forest from old clearings highlights their intimate understanding of the patterns of forest resurgence.

It is not only choosing a site for cultivation that reveals the Achuar's awareness of the rhythms of the forest and the lifeways of nonhuman beings. Their gardens are bordered with banana trees, which serve the dual functions of producing fruit and protecting against the encroachment of other trees (Descola, 1994: 157). The Achuar also selectively abandon their gardens in stages, often completely abandoning them after three years, and the spatial configuration of their gardens reflects this. Yields gradually decline, the amount of labour required to keep the area free of weeds becomes too great, until eventually the understorey vegetation of the forest begins to reclaim the land (Descola, 1994: 173-5). The relationship between Achuar swiddens and the forest may seem to recreate the traditional western dichotomy between nature and culture, and this conclusion could also be drawn from the

concepts by which they refer to plants that are *ikiamia*, from the forest, and plants that are *aramu*, planted by man (Descola, 1994: 160). However, these resemblances are misleading. The forest is the garden of Shakaim and is therefore cultural, just the plants of the forest and those planted by man are also both cultural. To the Achuar there is no separate 'natural' world, which runs entirely contrary to the ontology of western naturalism.

Exploring the ways in which the Achuar and the Runa peoples of the Amazon basin interact with their environment is illustrative of the depth of their understanding of the rhythms and ecologies of the forest. Their animist ontology affords agency and selfhood to nonhuman beings, and commits them to a relational world-view in which creating mutual understanding and kin relations across the irreducible difference of species is not only mutually beneficial, but morally essential. By creating kinds of relations with the spirits of the forest, and living in accordance with the conditions of these relations the Runa and the Achuar are holding themselves morally responsible for their actions and the ways in which they affect nonhuman worlds. This kind of moral engagement with the ecology of the forest influences Amerindian ideas of what constitutes the good life. Instead of producing or amassing as much material wealth as possible, the Achuar seek to live in a state of harmony with their environment. But this is only possible by carefully attending to noticing the rhythms of the forest itself, a capacity which the Achuar exercise in abundance in their swidden agriculture practices. These ethnographies show us the possibility of living sustainably in complex multispecies assemblages that extend beyond the human.

Forest Frontiers

As much as there is to be learned from ethnography of the indigenous peoples of the Amazon, being able to navigate the precarious naturecultures of the Anthropocene, which are contingent upon both localised practices and global forces, requires going further.

It is necessary to turn to the contested borderlands of forests on the frontiers of global capitalism, in order to grasp the co-existence, mutual unintelligibility, and the resulting friction of the localised practices of forest management and subsistence, with the global forces of capitalism. To this aim I mobilise the Anna Tsing's *Friction: An Ethnography of Global Connection*, (2005) which explores the contested forests of the Indonesian Meratus Mountains, with Nicholas Kawa's *Amazonia in the Anthropocene* (2016) which centres upon the rural Caboclo farmers of the Brazilian Amazon. Tsing's text explores the impasse that has formed between indigenous peoples, the Indonesian state and global forces of environmentalism and resource capitalism. Kawa's ethnography works to illustrate how the history of human occupation, and that of global capitalist forces, are intertwined with the realities of caboclo life in the Amazon. These forces work to create simplification, of nature and of ecologies, in line with the traditional western binaries of the Latour's modern constitution (1993: 32).

The Dayak peoples of the Meratus Mountains, like the Amazonian Achuar, are swidden cultivators (Tsing, 2005: xi). They are attentive to similar ecologies and assemblages, and cultivate relations beyond the human. Meratus Dayaks are no pioneers, however, as they are happy to cultivate in areas which show signs of previous cultivation. When clearing, Dayaks are careful to preserve particular kinds of trees, such as those which produce edible fruits and those which attract colonies of honey bees (Tsing, 2005: 178). These trees are engaged in a three-way relationship with their human stewards and the bees themselves. Meratus have a

system that allows them to lay claim to particular trees and, as long as they continue to cultivate them, pass those trees down through their family line (Tsing, 2005: 181). These trees and the relations with other nonhumans that they make possible are, in a sense, themselves part of the family. The Dayak people also have a rich understanding of the history of their forest, able to trace back the trajectories of Dayak livelihoods through the stories that the forest can tell them (Tsing, 2005: xi). However, this way of life is under threat. Swidden cultivation is illegal in the Meratus Mountains, (Tsing, 2005: 33) and this is because of the unintelligibility of Dayak forest management techniques to the modern Indonesian state, as well as other, global forces at play.

The Caboclos, rural farmers of the Brazilian Amazon, are also caught up in the frontier borderlands between local forest livelihoods and the larger supply chains of global capitalist resource extraction (Kawa, 2016). Much like the indigenous peoples of the Amazon, the Caboclos are engaged in subsistence activities that depend upon attentiveness to the actions and lifeways of nonhumans, such as hunting and fishing (Kawa, 2016: 48). Kawa explores the evidence of human occupation of the Amazon through the presence of incredibly fertile *terra preta* soils, known as Indian black earth. These soils were formed by the subsistence activities of sedentary, pre-Columbian indigenous societies (Kawa, 2016: 50). By including the stories of *terra preta* soils, Kawa reminds us of the histories of human disturbance that have also come to define the Amazon rainforest as it exists today. Another historical trajectory that came to define life for rural Amazonians is that of the rubber boom, fuelled by the global capitalist currents of nineteenth century industrialisation (Kawa, 2016: ix). The legacy of the rubber boom created a migratory, rural working class that laboured for landowners in a patron-client system (Kawa, 2016: 30). It created demand for labour that Tsing would define

as nonscalable, (Tsing, 2012b: 508) as it involved the negotiation of ecological complexity in order to create resources.

Caboclo hunting, fishing and farming practices are all nonscalable. However, nonscalability is often necessary for the functioning of otherwise scalable enterprises. Scalability is the ability of a business, or a process, to expand and travel across scales without changing any of its fundamental elements (Tsing, 2012b: 5105). The exploitation of natural resources is never entirely scalable, and the disjuncture between these two states is part of what makes up the what Tsing refers to as the resource frontier, where “the small and the great collaborate and collide... They wrest landscape elements from previous livelihoods and ecologies and turn them into wild resources, available for the industries of the world” (Tsing, 2012b: 5100). However, the frontier is not a pre-existing physical space, and nor is it a natural or indigenous category; it is a capitalist theory with very real worldly implications. It is a place where resources are not found, they are created instead by human resourcefulness. Capitalist frontiers create human subjects and natural objects, making dichotomies of them (Tsing, 2012b: 5101). In rural Amazonia, this plays out in an incomplete fashion in the daily struggle between man and nature that Caboclo farmers call *a batalha*, the battle (Kawa, 2016: 71).

The essentialisation of nature in this way, and the creation of the binary distinction between nature and culture, is part of the processes of simplification and alienation that accompany global capitalist endeavours. By breaking naturecultures apart into distinct yet fundamentally incomplete categories, obscuring or even severing the complex assemblages that make them possible, the nonscalable is made into the scalable (Tsing, 2005: 88). However, this idea of a fundamentally inert nature is what Tsing refers to as an engaged universal, (Tsing, 2005: 8) a concept which begins as a localism, is made to travel across difference and thereby transcends locality. Nature is the engaged universal that drives global

environmentalism, conservation efforts, and environmental politics. However, these global universals are not politically neutral, particularly those of the resource frontier, which are wrapped up in histories of power and colonialism (Tsing, 2005: 9). This is particularly true of the movements surrounding the conservation of the amazon rainforests, where colonialism already has a considerable legacy. It leads to what Gisli Pálsson refers to as environmental orientalism, (Pálsson, 1996: 65) in which nature is made fundamentally other to humanity. This leads to the institution of conservation strategies that unjustly exclude local or indigenous people, in favour of protecting the “natural state of affairs” (Kawa, 2005: 129).

In the case of the forests of the Meratus Mountains, however, the engaged universal of inviolable nature resulted not in orientalism, but in paternalism. The forces of global environmentalism and the state came together in response to the very real problem of deforestation in Indonesia (Tsing, 2005: 202). However, instead of restricting the access of logging companies to forested areas, the Indonesian government implemented a system that would further restrict the subsistence activities of indigenous peoples like the Meratus Dayaks. Wresting the communally managed forest lands of the Dayaks from them, the government instead favoured the creation of simplified tree plantations under the guise of sustainable forest management (Tsing, 2005: 255-6). This was able to occur due to the incomprehensibility of the nonscalable shifting cultivation of the Dayak forest lands to the workings of the state and to global conservationists. While swidden cultivation creates healthier and more diverse forests, (Tsing, 2005: 166) forest plantations are more readily understandable to state and global bureaucracies. In *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, James C Scott (1998) describes how the historical trajectory of scientific forest management led to the creation of simplified tree

plantations. These plantations could be easily understood in terms of statistics and forecasts and were therefore much more amenable to scalable industry.

The tree plantation, with its techniques of alienation, makes the production of timber scalable. By excluding other kinds of life which do not produce timber, the tree plantation is simplified and therefore more easily managed (Scott, 1998: 12). To this end, plantation trees are also often monocropped, meaning that only one type or species of tree is grown in any given area (Scott, 1998: 15). While this may be preferable to the logics of global capitalism, it is not without its consequences for the landscapes and beings that the plantation leaves behind, including the people who depend upon the forest for their livelihood (Tsing, 2015: 41). The forest is a complex ecology of beings, and in simplifying the assemblages of this ecology, entire sections of interwoven relations are cut away. This goes far beyond mere disturbance, and it is sure to block the forest's capacity for resurgence. As yields inevitably decrease due to the stagnation of the forest ecosystem, the plantation is abandoned and all that is left are ruined landscapes in which making liveable futures is now difficult, if not impossible.

The creative frictions at work in the forests of the capitalist frontier illustrate the possibilities of the interactions between competing and mutually unintelligible understandings of nature and of forests. Both the Dayak people of the Meratus mountains and the Caboclos of the rural Amazon are embedded in landscapes that have long histories of human disturbance, and both are engaged in nonscalable subsistence activities for the purposes of their own survival. However, the influence of capitalist structures creates a frontier zone, which rewrites the landscape according to the logics of western binaries and neglectfully simplistic categories. Global ideas of nature, and the movements of environmentalism and conservation which draw from them, exert pressures on a global scale

which come to have consequences for local livelihoods. The simplification required to create resources, as well as the work required to create scalability, lead to the alienation of people, nonhuman beings and even objects. However, this simplification can only be so effective. Scalability always relies on nonscalable elements, and simplified ecologies can only produce so much without diverse attachments. Otherwise, all we are left with is ruination. It then becomes necessary to explore these ruins, in order to see what we can learn about repairing damage and cultivating resurgence.

Forest Ruins

The forests of the resource frontier have much to teach us about the projects of simplification, alienation and scalability are constructed within the plantation, and in the indeterminate spaces at the edges of capitalism. These spaces construct binary oppositions between the categories of nature and culture, wild and domesticated, and human and nonhuman. The structures of global capitalism engage these universals and translate them across difference by means of the frontier, which in turn allows for the re-creation the world in the image of modernity. These universals and the global forces that transport them pose very real threats to the lives and livelihoods of indigenous peoples, as well as those of the living beings who are alienated by these forces. Finally, all of this leads to the ruination of landscapes, through severing the ties of ecological assemblages. I turn to Anna Tsing, specifically her *Mushrooms at the End of the World: On the Possibilities of Life in Capitalist Ruins*, (2015) to explore the possibilities of cultivating resurgence and liveability in the face of ruination, and also to better understand its worldly implications. It is hoped that exploring these blasted landscapes will enable us to think about living and dying in the face of the Anthropocene.

Tsing's ethnographic research traces the trajectories of forest management, and by extension the vitality of forests, of the post-industrial forests of Oregon's Upper Wastes and the neglected peasant commons of the Japanese satoyama. Beyond the more obvious qualities that separate them, such as distance and sovereignty, the histories of North American and Japanese forestry somehow happen to converge in spite of these differences (Tsing, 2015: 206). Both of these narratives begin with the dispossession of forest lands from their cultivators. In Oregon, the once diverse forests were encouraged by Native American peoples and their regimes of controlled burning. The giant ponderosa trees that grew in these landscapes were the envy of the settlers, and eventually became the reason that they drove out the native peoples by force (Tsing, 2015: 196). Across Japan, the satoyama were a kind of woodland commons upon which a great many peasant livelihoods depended. Small communities were able to gather everything they needed from these forests, from firewood to folk medicines and leaf litter to fertilise their crops. However, during the period of Japanese history known as the Meiji restoration, the rulers of Japan began to restrict the commons and privatise large swathes of forest (Tsing, 2015: 184).

The next stage of these histories lies in the implementations of tree plantations, which is then followed by their abandonment. North American foresters tried to cultivate trees like the Ponderosa with the methods of scientific forestry and forest plantations, mirroring the cultivation methods of modern agriculture. However, in alienating the trees from their ecology and neglecting to continue native forest management practices, these plantations quickly failed (Tsing, 2015: 196). These Native American burning practices, despite appearing invasive to the sensibilities of the settlers, were key disturbances in the ecology of the ponderosa forests. Without the proper burning regimes these plantations began to fail, and the character of these forests began to change beyond control, until all that is left are the

industrial wastes we see today. In a process with similar results, the satoyama forests of Japan were privatised and made into plantations for trees such as the sugi and hinoki, whose woods were desired by the wealthy and the powerful, which had a higher monetary value than the pine trees that characterised the satoyama (Tsing, 2015: 211). The sugi and hinoki tree plantations degraded and were abandoned, becoming ruined forests in much the same way of those in Oregon.

These histories of forest management, though they converge in many ways, had entirely different effects on the populations of the matsutake mushroom. Perhaps this is the difference between abandonment and neglect. It is this mushroom which Tsing traces, by ways of its entangled fungal filaments that are reminiscent of Haraway's idea of tentacularity (2016: 32). Its rhizomatic sociality, creating relations across irreducible differences, is mirrored by the ways in which it travels across the world through the supply chains of global capitalism. Traversing the post-industrial forests of Oregon, Tsing encounters a diverse group of Matsutake pickers who teach her how to pick these mushrooms for herself. By paying careful attention to the soil, and locations where the matsutake have previously been found, she observes that success in mushroom picking depends on cultivating attentiveness to the forest, and performing it through the body (Tsing, 2015: 248). Mushroom picking is a nonscalable activity that takes place in what Tsing has previously called the salvage frontier, a place "where zones of conservation, production, and resource sacrifice overlap almost fully, and canonical time frames of nature's study, use, and preservation are reversed, conflated, and confused" (Tsing, 2003: 5102). In the salvage frontier livelihoods are often temporary and cobbled together, it is a place where the forward march of progress falters, and "industrial work no longer charts the future" (Tsing, 2015: 132).

North American matsutake pickers show us the possibility of creating livelihoods in ruined landscapes, however the work of Japanese matsutake scientists shows us how to work towards resurgence. The loss of satoyama forests during the Meiji Restoration, which continued on until after the second world war, also inspired a population exodus from rural areas to urban centres, due to the unviability of traditional livelihoods and subsistence practices (Tsing, 2015: 185). The remaining satoyama forests were abandoned, falling into a state of neglect. Tsing follows the matsutake's fungal attachments to a cadre of researchers who hope to find ways of revitalising these neglected landscapes, with the aim of reintroducing the mushrooms to Japanese forests. Kyoto's Matsutake Crusaders and other matsutake conservation groups are volunteer organisations that seek to revitalise satoyama woodlands, incorporating the findings of matsutake science (Tsing, 2015: 258). These groups are seeking to promote kinds of forest management that include human disturbance. By disturbing the forest, these 'satoyama defenders' seek to return it to its former state, and thereby encourage the flourishing of the pine forests' fungal symbiotes, the matsutake (Tsing, 2015: 260). These practices hope to cultivate attentive relations with the rhythms of the forest through particular kinds of disturbance, tapping into the forest's capacity for resurgence and creating more complex ecologies that include the human.

Exploring the ruins left in the wake of capitalism, immerses us in landscapes that are consequential to human activity. They show us that by simplifying landscapes, alienating beings and severing the ties of ecological assemblages are not only unsustainable, but unproductive. The ruins of tree plantations and post-industrial forests allow us to see the direct, worldly consequences of these ultimately destructive practices. They warn against only seeing in one scale, as the universalisms of global forces cannot account for the ruination of forest lands, while the local practices of rural and indigenous peoples are not enough to

account for the pronounced global convergences of forestry practices, leading to widespread deforestation and ruination. Tsing's encounters with North American matsutake pickers teach us about creating liveability in the ruins of capitalism, that all is not lost and life will go on. However, her experiences with the volunteers and matsutake scientists of satoyama revitalisation groups and the Matsutake Crusaders teaches us about the possibilities of rebuilding neglected ecologies. By becoming attentive to the environment, with the help of scientific understanding, which teaches us about the multispecies relations in which we are entangled, and the embodied knowledge that comes with the experience of working within forest ecologies, it could be possible to work towards cultivating resurgence.

Conclusion

In the ruined landscapes of industrial forest plantations and global capitalism, we find ourselves once again within the bounds of Anthropocene. Confronting the Anthropocene forces us to look again at *Anthropos*, calling into question what it is to be human in a world that can no longer be separated into the comforting binaries between nature and culture, humans and nonhumans, and persons and things. Instead, the Anthropocene plunges us into the precarity of naturecultures, laying bare the many relations that inseparably interlink the lives of human and nonhuman beings. Instead of the narratives of human exceptionalism, we are reminded that even though our ability to affect the world has increased, its mastery continues to elude us. The Anthropocene marks a boundary between a familiar cosmos with Species Man in a position of privilege, to one where mutually constitutive relations are always at the centre of things. However, keeping in mind the lessons of the Capitalocene and Plantationocene, this also reminds us of the profound consequences of human historical trajectories and the global structures we create, bringing into question the future liveability

of our world. By thinking in terms of Haraway's (2016) Chthulucene, we can find ways of creating liveability in the present and hopes for survival in the face of ecological and environmental precarity. Following the tentacular webs of the Chthulucene, this teaches us about being attentive to our earthly kin, regardless of species. These networks, and ethical engagements with them are key to the flourishing of all of the chthonic beings of the earth.

Thinking with Donna Haraway's Cthulucene leads us to the field of multispecies ethnography, and the concepts of the multispecies turn, in the hopes of making sense of the complex, interconnected ecologies and assemblages of life in the Anthropocene. Engaging Donna Haraway's concepts of sympoiesis and Companion Species allows us to engage with the mutually constitutive histories and interrelations that define human and nonhuman species. We are always becoming-with the world and its beings. Engaging the work of anthropologist Anna Tsing allows us to think in terms of assemblages and ecologies, and to comprehend ways of participating in these interconnected networks through disturbance. Tsing characterises the dynamism of these ecologies, particularly those of forests, by going beyond resilience and regeneration to forest resurgence. Tapping into forest rhythms through measured disturbance and cultivating resurgence are imperative for the continued flourishing of multispecies assemblages. Additionally, the thought of anthropologist Eduardo Kohn and his thinking forest gives us another perspective on the interconnected relations of multispecies ecologies. Kohn takes selfhood to be a fundamental characteristic of living beings, and defines life itself as inherently semiotic. From this vantage, qualities ordinarily considered human, such as thought, intentionality, and agency, can be extended to nonhuman beings. Seeing life in semiological terms allows us to reconsider the possibilities of communication across irreducible differences. What is left is to find worldly examples of these ecologies beyond the human in order to learn from them.

In the search for ethnographic research that reveals these complex multispecies assemblages, I turn to the forest as a guide. Forests are the very ideal example of complex, ecological assemblages of interrelated beings, and are equally entangled with the histories of human disturbance and exploitation. As Kohn notes, “Forests are good to think with” (2013: 21). Ethnography of the indigenous peoples of the Amazon illustrates the possibilities of human involvement in forest ecologies. Amerindian animism and perspectivism is entangled with worlds in which creating relations and communicating across irreducible difference is of vital importance. These peoples are engaged in intimate relations with the ecology of the forest through attentive engagement and measured disturbance, embedding them within the ecology of the forest and creating sustainability. However, the forests of the frontier reveal the fragility of these lifeways, and how the projects of global capitalism and the plantation rewrite landscapes according to the travelling universals of western modernity. These structures have profound effects on local forest ecologies and the beings which depend upon them. Global capitalism requires scalability, which requires the simplification of ecologies and the alienation of humans and nonhumans alike, and scalable forests create ruined landscapes.

In the ruins of capitalism and plantations, we learn about the far-reaching repercussions of human activity. Ruins require seeing in multiple scales, the local currents of subsistence practices and indigenous forest management, the designs of the state and its instrumental power, and the global forces that transport universalisms and alienated things across distance and difference. Exploring the neglected and ruined landscapes of post-industrial forest plantations shows us the potential futures of the Anthropocene, where the liveability of our world is rendered precarious and uncertain. However, it is here that we can also find hope. Through salvage rhythms, matsutake pickers show us how life goes on, in one form or another, in these blasted landscapes. Satoyama revitalisation and matsutake science

allow us to consider the possibility of cultivating neglected ecologies. Through measured disturbance, attentiveness to the multispecies assemblages in which we are entangled, and creating kin relations across species lines, it could be possible to tap into the forest's capacity for resurgence. By "speaking resurgence to despair" (Haraway: 2016: 71) we can go beyond the looming existential threats of the Anthropocene, abandoning apocalyptic visions of possible futures, and work to cultivate liveable multispecies arrangements in the present moment.

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