

RESEARCH/PRACTICE ARTICLE

Crafting granular stories with child-like embodied, affective and sensory encounters that attune to the world's differential becoming

Jayne Osgood^{1*} and Nina Odegard²

¹Middlesex University, London, UK and ²University of South-Eastern Norway (USN), Norway

*Corresponding author. E-mail: j.osgood@mdx.ac.uk

(Received 21 February 2022; revised 28 February 2022; accepted 01 March 2022)

Abstract

In this paper we explore what decentering the child in posthumanism does to our research practices, to our conceptualisations of and relationalities to the child. Crucially, we explore the imperative for other ways to encounter the child – that pursue a decolonising and de/recentralising agenda. We pursue tentacular lines of enquiry through a series of interwoven stories – some more familiar than others. It is by queering old narratives that new and unexpected stories concerning pedagogical documentation, sustainability and environmental education, and the child's contaminated connection to 'nature' begin to emerge. This paper attempts to mobilise 'the posthuman child' as feral, an uncomfortable in-between that invites us to grapple with the disease of life on a damaged planet. Central to our storytelling is recycled, 'natural' materials found in a Reggio Emilia kindergarten in Norway. Specifically, cork has guided us; insisting that we take the non-innocence of matter to the heart of enquiries. We do this to illustrate the potential of feminist new materialism to respond with situated, embodied, affective insights and provocations that might offer ways to consume, cohabit and wrestle in more care-full ways with the Anthropocene ecologies that we are intricately and endlessly enmeshed in.

Keywords: Early childhood education; natural materials; anthropocene; post-qualitative; posthumanist; Reggio Emilia

*Fortune Favours those who see
More in me than just a tree
Look at my cork
And three times walk
Before my girth for all to see¹*

Introduction

Early childhood studies framed by feminist new materialist and posthumanist philosophies argue for research as embodied and affective, and following Haraway (1988) stress the importance of situated knowledges, partial perspectives and figurative practices. Braidotti (2018) goes on to argue that figurations demand a sense of accountability for self-reflexivity that is generated from a series of interwoven processes reliant upon a social network of exchanges rather than something that resides in the individual human subject. Research in this key typically involves a series of

We declare that this manuscript is an original work that is not submitted or published elsewhere.

© The Author(s), 2022. Published by Cambridge University Press.

unanticipated, affectively charged processes that attend to the generative relationalities of human, more and other-than-human encounters with the everyday and often taken-for-granted in early childhood contexts. This close attunement and grappling with ‘what else’ demands political, ethical, enmeshed and accountable approaches to research (Strom, Ringrose, & Renold, 2019). The pursuit of a feminist commitment to mobilising theory (Mazzei & Jackson, 2012) creates capacities to tell other, worldly, stories (Haraway, 2016) that extend complex figurations of the posthuman child in contemporary research by calling into question what agency is, what it means, what it does, and vitally, what difference it might make to life in the Anthropocene.

The Power of the Non-human to Reconfigure Research Stories

As we have gone about curating and compos(t)ing this journal paper, we have re-encountered observations and stories from times once spent in kindergartens (Osgood, 2020a, 2020b; Odegard, 2021). But for now, we are contained in our homes, on our islands, prevented from being with each other in real time or having the pleasure of spending time learning with and from young children. We directly witness the power of a non-human agent (COVID-19) to completely reconfigure our more-than-human relationships with each other, and to reshape our connections to and stories of research. As written elsewhere (Osgood, 2022; Osgood, Andersen, & Otterstad, 2022) the pandemic has drawn into sharp focus the complexities of our time, and the grave limitations of human exceptionalism, and the extraordinary force of the non-human to reshape the world in unanticipated ways. The current geopolitical epoch in which we find ourselves – that is at once generative of, and implicated in, complex social, political, and cultural systems, demands that childhood researchers reappraise how and why we undertake research in the ways that we do and what potentialities exist from embracing more speculative and tentacular approaches.

Posthumanist childhood studies demand uncomfortable questions about our response-abilities, and how we might actively participate in world-making practices, with children, in the pursuit of more liveable worlds. We face a pressing imperative to recognise the immense challenge that exists to engage in research with children (intellectually, emotionally, physically) across geopolitical, social and historical contexts. In this paper we endeavour to respond to the call from a growing body of feminist thinkers (including but not limited to Alaimo, Haraway, Tsing and Stewart) to take seriously what messy encounters with the Anthropocene can teach us. Collectively they insist that we bear witness to and act upon the grave material and immaterial injustices that persist across time and space. And crucially, find ways to reconfigure our more-than-human relationships with land, water, flora, fauna and other non-human living organisms through practising care and attunement and letting go of certainty and efficiency. Haraway (2016) invites us to think-with the Anthropocene in ways that render us response-able by retuning our ability to respond, and produce forms of actionable responsibility toward ourselves, other(ed) humans (the young child included), more-than-human kin and the planet.

The Need for Granular Stories of the Feral

Tsing and Bazzul (2022) encourage that we learn new ways of storytelling that are simultaneously about human histories, *and* histories of the natural world. Tsing claims that Anthropocentric logic has dominated the structures of knowledge over the past several centuries, such that humans are regarded as separate and superior to plants and animals, rocks and climate. To engage more fully in the machinations of the Anthropocene we need to learn to tell *granular stories* of its *feral* effects which take account of it as a spatial and temporal phenomenon. Granular stories attend to questions of social justice – that is the uneven distribution of resources and forms of violence and to the natural phenomena emerging around us. Tsing (op cit.,) advocates finding ways of parsing out the Anthropocene to the places where differences can be sensed, observed, and imagined. This parsing

out necessitates the coming together of critical humanities and natural sciences to focus on the ‘feral’ of the ordinary that has effects beyond those that were intended. Like Tuana (2008) and Alaimo (2010) it is Tsing’s contention that the Anthropocene must be thought of in patchy ways, as socially and environmentally uneven.

Tsing, Deger, Saxena & Zhou (2020) draw attention to ‘feral qualities’ as ways that non-humans gain purchase within the capitalist infrastructures of the Anthropocene to transform themselves to become something different. Feral outcroppings created by political-ecological disturbances are symptomatic of our current time when it is impossible to live outside of capitalism and human infrastructures. In *Mushroom at the End of the World* (Tsing, 2015) Tsing demonstrates the need for finding new collectivities in the ruins of human infrastructures and capitalism which she characterises as an ethical challenge in distinguishing disturbances that work towards particular forms of flourishing. The feral signals an attunement to non-human responses to the way humans are living, the feral is essential to the worlds we live and offers counter narratives of earthly survival. Take for example lichen (Osgood, 2022) and its capacities to disrupt and offer other accounts of childhoods caught up in a pandemic in densely populated, urban cities. Granular stories are dystopian but hopeful stories. According to Tsing attuning to ferality can be thought of affectively, as *wandering mists of dread* which involves striking a balance between acknowledging the severity of the environmental challenges while remaining appreciative of the abundant feral action around us. The task becomes to try and access it with multiple skills, curiosity and passion. Early childhood scholars have long recognised young children’s capacities for attunement and ferality, which Tsing & Bazzul (2022) also notes:

‘I find this idea of ferality in young children. This difference between not noticing the sidewalk, but the grass growing in between the cracks of the sidewalk - it seems to me that children might be the best observers of this . . . It is my dream to have students go out and identify, discuss, and perhaps intervene in feral entities in their communities and neighbourhoods. Put a bit of themselves alongside these feral entities!’

In what remains of this paper we attempt to work with Tsing’s granular stories of disturbance-based ecologies, ferality and the wandering mists of dread as a mode of enquiry that asks what we can learn, relearn and un-learn about (and with) the posthuman child. We begin by attuning to the material environment of the kindergarten and grapple with the reduction of ‘natural resources’ to that which is used for human exploitation and consumption – including pedagogical gain.

Encounters with Cork in a Reggio Emilia Inspired Kindergarten in Norway

By taking matter seriously, in this instance, cork, we investigate what decentring the child does in the generation of alternative stories about early childhood pedagogy and research. We grapple with how to avoid erasing the child from our investigations and instead take up ‘child’ as an opened-up concept, replete with tentacular connections. We propose that it is possible to engage ‘the child’ as phenomenon, as a series of past-present processes that enable worldly challenges facing planet earth to be encountered viscerally. ‘The child’ is centralised but also reconfigured in ways that demand that we, as researchers, attend to childhood in its broadest, confederate, worldly sense. This involves dismantling the ‘developmental child’ enshrined in many national early childhood curriculum frameworks and disrupting accounts of childhood innocence and reconfiguring the tight coupling of childhood with nature that romanticises, and thus limits the image of the child. We turn to the non-innocence of early childhood pedagogy, the ferality of both nature and child to arrive at lessons about earthly survival on a damaged planet (Tsing, Swanson, Gan, & Bubandt, 2017). This involves critical engagement with early childhood curriculum, pedagogical practices and the predominant image of the child as conveyed through policy and philosophy.

The prevailing logic of the developmental child in early childhood is far reaching and can be identified in policy documents and curriculum frameworks from Chile to Australia and a host of other nations in between. We concern ourselves in this paper with the ways in which the developmental child finds expression in a Norwegian kindergarten inspired by the transference of the North Italian educational philosophy of Malaguzzi, widely referred to simply as 'Reggio'. The interplay of curriculum frameworks as set out by nation states and the philosophies proposed by educationalists such as Malaguzzi are rarely straightforward, and more often characterised by tension, ambiguity and subversion. Our concern is to explore how 'the child' materialises within these competing and contrasting discourses and through materialised pedagogical practices.

She stands at the threshold, peering into the room of recycled materials. She scans the room, feeling with her eyes. Each shelf hosts different materials: wide array of colours, various shapes, assorted sizes, multiple textures. Her attention is hailed. She takes a tentative step closer to one of the shelves, which displays natural materials: feathers, stones, shells, and bottle corks. Her hand grasps for a feather, her fingertips touch the soft, fragile materials, then she picks up a cold, round, stone, holds it in her palm, returns it to the shelf and then her hand hovers above a small collection of cork stoppers. She takes one, the lightness of cork is visible in her hand, she studies it closely, then she takes another - a fatter, more robust looking cork, she rotates the cork, inhales it deeply, rolls it over her top lip, takes a tentative bite. She digs her nail into the side of the cork, and then pushes it against the nearby wall, the firm resistance visible in her body. She returns the corks, carefully, one-by-one, arranges them in ascending size order, almost without noticing the codification, she steps away. I move forward to study her corks; I imagine that I notice some of what she had noticed- the images and words etched upon the corks: of bees, grapes, a map of South America; CHAMPAGNE; 100% FSC; a star; a coat of arms and a crown. I resist picking them up but wonder at the lightness, the texture, the feltness of these palm sized stoppers. She turns around and asks if she can bring the corks with her to the classroom.

Beginning with the Norwegian early childhood curriculum (KD, 2017) we are introduced to a very specific set of ideas about interactions within spaces and with materials that underline human exceptionalism. For example, early childhood centres are instructed to introduce new situations, themes, materials and tools that will contribute to meaningful interactions (p.22). Human development and linear progression emerge as a recurring theme that can be achieved by pedagogical content, methods, toys, materials and in shaping physical environments in particular ways (p.52). The importance of materials to contribute to the acquisition of skills and abilities is emphasised in three subjects, 'Art, Culture and Creativity' and 'Nature, Environment and Technology' and 'Number, Space and Form'. The curriculum framework offers specific guidance on the materials and spaces that children should have access so that playful and aesthetic expressions, technological expressions and opportunities to work with phenomena (pp. 51, 53, 54) can be supported. Curricular materials in Norwegian kindergartens are viewed as inert matter, used by adult humans to support child development. The curriculum promotes a developmental view of the child with a strong emphasis on school-readiness. However, concepts such as exploration, creativity and expression also feature within the document and indicate a (secondary) commitment that recognises the intrinsic value of a child's right to play and explore through everyday encounters. The Norwegian curriculum underscores the importance of children's rights to actively participate in everyday life, which extends the UN Rights of the Child and is incorporated in Norwegian law. A rights-based discourse does not challenge either developmentalist logic or the emphasis on school-readiness; rather together they provide the cornerstones to Norwegian early childhood policy.

Back in the classroom, we gather three- and four-year-old children for a meeting. The child shows the corks to the group; talks about the images and what caught her interest. The other children start to study them, tossing and turning the corks around, feeling the surface, smelling them, throwing them, bouncing them, rolling them in their hands, biting down on them, digging their nails into the tough yet spongy surface . . . Asking questions and conjuring stories from the images printed on the sides of the cork, and the words which are mostly either English or French. I ask them if they want to explore the corks. Enthusiastic nods. What is this material? Where does it come from? What are the multiple ways in which we might explore cork? . . . A new project has begun.

The enactment of the national curriculum framework is observed at this Reggio-inspired kindergarten which provides the foundation to our research. The twin emphases on linear development and human rights in the framework reinscribe Anthropocentrism and a narrow conceptualisation of the child that rests upon a preoccupation with certainty and normativity. However, the staff at the kindergarten worked in ways that observe the Norwegian national framework *and* that were in accordance with the Reggio Emilia approach: ‘an educational philosophy based on the image of the child, and of human beings, as possessing strong potentials for development and as a subject of rights who learns and grows in the relationship with others’. (Reggio Children, 2020). Furthermore, they were particularly interested to explore the potential for recycled materials to deepen and extend the nature of early years experiences. Cork is often found in Reggio-inspired kindergartens the world over on account of its closeness to nature and eco-credentials, as this quote illustrates:

‘Cork is 100% natural, biodegradable, and completely environmentally friendly. It is ideal for children’s use since it is lightweight, waterproof, easy to clean and resistant to wear. Due to its tight cellular structure, it does not collect dust and is hypoallergenic. Cork comes from the bark of the Cork Oak Tree. The extraction of the bark is a process that doesn’t harm the tree but in fact, prolongs its life. Every nine years there is new bark to be removed. These oak forests support one of the world’s highest levels of forest biodiversity, second only to the Amazonian Rainforest’

[MioReggio, 2022]

Teaching inspired by the Reggio Emilia approach is characterised by a commitment to supporting the more than 100 languages of children (Malaguzzi, 1998). The pedagogical approach involves the use of increasingly sophisticated tools and materials so that young children are supported to express themselves through multiple symbolic and artistic media (Edwards, Gandini, & Forman, 2012; Odegard, 2021). Reggio pedagogy also involves listening, but a listening that reaches beyond what is heard aurally to rich multi-sensory listening. It insists that the pedagogue attunes to the multiple languages children use in their encounters with cork. Paying attention to that which appears to captivate children. Assessing how children learn in and through encounters with cork. The approach exceeds a narrow focus on what children learn, but rather the objective becomes to study the processes involved in learning. The teachers continually explore children’s ways of learning through the senses, their more than 100 languages, their play.

‘We start by documenting the children’s aesthetic explorations of the cork stoppers by taking photos and writing down what they say and do. By giving the documentation back to the children, we move the process forward. The children present their images and are supported by their teachers as necessary. In accordance with Reggio Emilia philosophy, the child-led explorations and processes are central . . . as pedagogues we are open to whatever direction the explorations might take’



Figure 1. Aesthetic explorations with cork, image provided with permission, Anna-Helen Kaupang-Schøning.



Figure 2. Aesthetic explorations with cork, image provided with permission, Kristin Hoen.

A child's curiosity with cork provides the foundation for a project in aesthetic exploration (Odegard 2, 2021) that involves an entire group (see Figure 1), including the teacher who undertakes further investigation that attends to the material composition of cork, its history and origins. A thorough engagement with the object (see Figure 2) enables teachers to better support children's curiosities and enable them to reach embodied understandings of materials. Within Reggio Emilia inspired settings careful attention is paid to bodies, senses, and words through aesthetic explorations with materials. Through pedagogical interactions with children teachers seek to promote children's well-being, and encourage learning in all domains; cognitive, fine-motor, social and emotional (Edwards, Gandini, & Forman, 2012). Whilst the Norwegian kindergarten made extensive use of recycled materials, cork building materials are also available from Reggio approved suppliers, and are a common material found in most Reggio Emilia settings across the world:

Built on a philosophy that encourages creativity, hands-on learning, and a connection to nature, cork building materials can be sourced from MioReggio whose mission is to provide innovative educational toys that promote sustainability and biophilia. Research has shown that the intrinsic bond humans have with nature, called biophilia, has many benefits for children. Benefits can include less stress, enhanced attention, improved social interaction as well as a deeper appreciation for our natural environment.

[MioReggio, 2022]

This construction of biophilia does not attend to ferality, that is, that which is unintended, that which emerges from disruption ecologies. As Haraway (2008) argues, no material or environment is solely nature, she urges that we think with naturecultures, and attend to the non-innocence of matter, place, and relationalities to the world shaped by capitalism, hetero-patriarchy and coloniality. Tsing's (2022) ferality urges us to attune to naturecultures, the non-human as in processes of transmuting in response to the effects of the Anthropocene. In early childhood contexts, and especially Reggio-inspired settings, cork is presented and celebrated as natural, pure, wholesome but posthumanism invites us to wonder at what feral tentacular engagements with cork might unearth.

What Might a Deeper, Embodied Engagement with Cork Make Possible?

Following Wallace, Bazzul, Higgins, and Talbert (2022) we want to propose that educators (and researchers) in the Anthropocene might engage in disturbances that work towards redefining the trajectory of community life. It is from relations with elements, magical realism, political manifestos and Anthropocenic disruptions that educators can take bold steps into different worlds – that take account of social injustices, the ravages of capitalism and the complexities of life on a damaged planet. We are curious about what is missed when 'the child' is framed in Anthropocentric, developmentalist logic, and when 'natural materials' are revered for their purity, innocence, wholesomeness, and separateness from humans. Despite this framing, 'natural materials' maintain an inferior, utilitarian relationality to the young child.

We wonder what might happen if we take material to the heart of our inquiry? Can we allow our optics to wander and so attend to the relationalities between cork and 'child' in a worldly, confederate sense? Casting back to the Norwegian pre-schoolers' curiosity with cork (its feltness that incites haptic explorations with teeth, nails, force, and velocity) can we attune to child-like capacities to notice, as astute observers of the 'what else'? Doing so involves the pursuit of tentacular lines of enquiry that reach beyond and resist reinscribing narratives of biophilia and innocence, nature and purity and so arrive at other stories; granular stories that are disruptive and generative.

With curiosities provoked, a writing methodology began to emerge that invited us to explore 'what else' cork might potentiate. Attuning to feltness, embodied encounters, oral investigations, and a willingness to be open to what the texture, scent, taste of the corks might agitate we began to seriously play (Haraway, 2016). It was only by rummaging and foraging around our houses, through kitchen drawers, and in the depths of craft boxes that we were able to assemble piles of cork stoppers.

Small piles of cork stoppers spread across the surface of our desks. We find ourselves rolling cork between fingers; allowing it to rest palm-up as it captures the sun; biting down on its spongy surface; inhaling the acrid scent of old wine traces, throwing it against the wall to watch it bounce haphazardly across the room; studying the printed words etched along the sides. Taking our cue for aesthetic explorations of 'natural materials' from young children set in motion a raft of uncomfortable affects (see Figure 3). Aside from wondering what cork is and what cork does, we were



Figure 3. Researcher aesthetic explorations with cork assemblage, author's own photo.

prompted to explore what and where else cork can take posthumanist enquiries into childhood of the Anthropocene. This insisted upon a project of tracing and delving into long forgotten colonial, heteropatriarchal, capitalist histories where the non-innocence of cork became apparent. Attuning to the unfurling of cork lines and staying with the discomfort that sticky knots encountered along the way presented, generated other ways to encounter 'the child' which we go on to unravel.

Granular Stories of Cork

In response to Tsing's (2022) invitation that we learn new ways of storytelling that are simultaneously about human histories, *and* histories of the natural world we arrive at 1662, when Robert Hooke, Curator of Experiments of the Royal Society of London², observed that he:

... could exceedingly plainly perceive it to be all perforated and porous, much like a honeycomb, but that the pores of it were not regular ... these pores, or cells ... were indeed the first microscopical pores I ever saw, and perhaps, that were ever seen, for I had not met with any writer or person, that had made any mention of them before this.

Hooke was celebrated as having 'discovered' cork by studying it under a microscope. As a man of science Hooke is performing what Haraway (1988) terms the God Trick, which elevates heteropatriarchal, colonial knowledge production above all others. Alternative accounts of cork (Ciesla, 2002) claim that the first people to recognise the extraordinary qualities of cork lived in the eastern Mediterranean, a considerable distance from where cork oaks occur naturally in southwest Mediterranean and northern Africa. The ancient Greeks used the bark of cork oak to make buoys to float fishing nets, for sandals and for stoppers of vessels containing wine and olive oil. The Greek philosopher Theophrastus (from third century BC) discovered that when one layer of cork

was stripped from a tree, a new sheath of better quality was quickly formed. Later, the Romans put cork to a wider range of uses, as we learn in Vergil's *The Aeneid* (Kline, 2014) where the infant princess Camilla is saved from capture when her father encases her in cork and flings her across the river:

He, preparing to swim across, was held back by love of his child, and fear for his dear burden. Quickly, debating all options with himself, he settled reluctantly on this idea: the warrior fastened his daughter to the giant spear, solid with knots and of seasoned oak, he chanced to be carrying in his strong hand, wrapping her in the bark of a cork-tree from the woods, and tying her wisely to the middle of the shaft: then balancing it in his mighty hand he cried out to the heavens: 'Kind virgin . . . dweller in the woods, I her father dedicate this child to your service . . . Goddess I beg you to accept as your own this that I now commit to the uncertain breeze.'

[The Aeneid, Book 11:532–596,]

Cork has a long and lively recorded history which is often presented as being in the service of the figure of Vitruvian man (Braidotti, 2013). Early fishermen in the Mediterranean are claimed to have used cork to fashion life jackets whilst Dioscorides, a Greek physician in the second century AD, described some medicinal uses of cork (Ciesla, 2002) especially in the treatment of male pattern baldness. For many centuries the qualities of cork were acknowledged and celebrated as humans consumed it in myriad ways. However, it was Hooke's 'discovery' that provided scientific insights that explained what had been known intuitively and instinctively by indigenous communities for thousands of years. Hooke's microscopic investigations revealed cork to have a honeycomb structure, typically either pentagonal or hexagonal, with over 795 million cells in a single cork. The composition of cork which includes Suberin and Cerin means that it is impermeable to both liquids and gases. Hooke's microscopic investigations indicated that cork is an elastic material, compressible and adaptive to temperature and pressure without suffering variations; and a material well suited to human use to provide thermal and acoustic insulation. It is also recognised as a natural fire retardant.

Hooke was able to undertake his experiments with cork because a burgeoning trade was growing from Mediterranean and African export of the material. In fact, *Quercus suber* has been a significant economic asset since the fourteenth century to areas in Italy, Portugal, Spain and Morocco. Cork was first exported to England around 1307 during the reign of Dom Dinis; in 1320 tough measures were imposed against anyone damaging 'his' cork oaks. During the reign of the Portuguese king Dom Fernando, cork was one of the main exports. As the centuries passed and with the growth of colonial exploration and land acquisition the increased movement of native plants and materials to other contexts began to qualitatively alter communities, landscapes and ecosystems. As Tsing & Bazzul (2022) stress, long-distance transfers, both intentional and unintentional, introduce new living and non-living things into local ecologies. Even benevolent improvement projects go awry; and industrial stowaways take over: Anthropocene ferality is spread through such introductions.

The 'Lucky Cork Tree' of Tenterfield

The poem that opened this paper provides one such example of Anthropocene ferality. Tenterfield's 'Lucky Cork Tree' was brought from England in a 'jam tin' by Edward Parker in 1861. Known as the Wishing Tree, the Cork Tree in English folklore is purported to be surrounded by magical power that brings good luck to those who observe certain rituals dating back to the time of the Great Plague of London 1665. Around that time, people came from all parts of Australia to walk around the Cork Oak tree three times to make a wish. Some came for better health, some for better fortune. Tenterfield was heavily populated by settler colonists who were

drawn to its likeness to ‘home’ on account of similar climate and landscape. Tenterfield is located in the ‘New England’ region and is home to wineries and wilderness and is renowned as the town where Sir Henry Parkes made a speech in 1889 calling for the federation of Australia. For many thousands of years before the region was home to three main Aboriginal nations; the Jukembal, Bundjalung, and Kamilaroi people.

The Bundjalung and Jukembal people were the first to inhabit the land now known as Tenterfield Shire. The Jukembal called the area ‘Moombilleen’, meaning ‘place of wild honey’. The Githabul people lived in the northern part of the Shire, in and around the lush forests of the ranges straddling the NSW-Queensland border for tens of thousands of years. Australian Aboriginal culture varies throughout the continent and people from different regions have different ancestral rituals, tools, weapons, and art styles. Tenterfield True (2021) claim that Aboriginal people removed bark from trees to make canoes, containers, shields, and to build temporary shelters. Toeholds were also cut in trees to make them easier to climb as lookouts and to hunt possums or beehives. Ten kilometres from Tenterfield, Bluff Rock is the location of the first known conflict between local Aboriginal people and the European settlers, in 1844.

Over many decades settler colonialist laid ever greater claim to the land which culminated in the forcible removal of Aboriginal children from their families by federal and state government agencies and church missionaries, through a policy of assimilation between 1910 and 1970. Known as *The Stolen Generation*, children were subjected to processes of assimilation; separated from their families and forced to adopt a white culture. The Common Ground Team (2021) write that the children were forbidden from speaking traditional languages or referring to themselves by their birth names. Most were placed in institutions where neglect and abuse were common, and some were adopted by white families and used for domestic work. In Aboriginal and Torres Strait Islander cultures children are considered sacred, and kinship systems ensure close-knit communities. Separation from kin and witnessing abuse of children was devastating for indigenous communities across Australia. Furthermore, the transfer of knowledge and oral culture between generations was disrupted which had a devastating impact on the continuation of deep cultural knowledge. The celebration of ‘The Lucky Cork Tree’ takes on an altogether different complexion when storytelling accounts for human histories of those othered, *and* histories of the natural world, also othered through processes of white supremacy and colonialist brutality. The Tenterfield Shire Council Tree Management Plan (2021) indicates the continued centrality of the Cork Oak trees in the area, stating that:

‘Deciduous trees are enjoyed by travellers and the local community, for their vibrant autumn colours. Tenterfield has mature trees that create a passageway throughout streets and parks that form habitat for birds and other wildlife. The community values and appreciates the town’s trees for their shade, appearance and ability to attract tourists’.

Although cork is not harvested in Tenterfield it still has an economic value attached to it for its capacities to increase tourism in the area. The aesthetically pleasing Cork Oak trees are also a powerful reminder of the lasting presence of settler colonialism and the barbaric treatment of children from indigenous communities that lives on as intergenerational trauma. The non-innocence of cork (re)surfaces here as a timely reminder of our response-abilities to attune to the ‘what else’ when storytelling attends to disturbance-based ecologies.

The Hollowed Oaks of Norway

Such storytelling of the non-innocence of trees takes us back to Norway in the 1960s; to a benevolent improvement project that has since gone awry. A reforestation programme was introduced to stall the effects of climate change; throughout the 1960s 100 million Norway spruce trees were

planted annually with much of the tree planting undertaken by school children as part of education programmes designed to raise awareness about environmental sustainability. This human intervention has exceeded intentions because growth seasons have extended due to climate change, notably a warmer and wetter climate, increased concentrations of carbon dioxide and nitrogen deposition from the air. The proliferation of spruce, fir and birch trees pose a direct threat to the survival of the ancient oaks and the ecosystems that reside within hollowed out trees.

According to Amundsen (2014) oak forests once covered large parts of southern Norway. But in the 1500s and 1600s they were felled and sold in Norway and across Europe as a lucrative national commodity. Today, the few remaining oak trees across Norway are under threat from new spruces, pines and other types of vegetation growing between the old oaks creating shade, interrupting ecosystems and ultimately hastening their deaths. The Norwegian landscape is now dotted with hollowed out, centuries-old oak trees on the verge of extinction. Hundreds of insects, lichens and fungi live in the hollowed oaks. This a phenomenon that biologists (Figueiredo, Krauss, Steffan-Dewenter, & Sarmiento-Cabral, 2019) term 'extinction debt' where the future extinction of a species is caused by past events. Tree dwellers (insects, lichens, and fungi) risk paying the ultimate price of extensive tree felling five hundred years ago; they face extinction because they have insufficiently adapted and are out of balance with their surroundings rather than struggling to cope with more current disturbances from fossil-fuel-burning humans. The complex unfolding and infolding of human intervention, extractivism and intense commodification over centuries, and resulting feral effects are a powerful reminder of the limitations of capitalist logic that fails to fully grasp the effects and consequences of Anthropocentrism. Close attunement to these 'tree dwellers' holds potential for a pedagogy that can provide insights into finding ways to live and die together (Haraway, 2016).

The Feral Effects of the Plantationocene and Human Extractivism

According to Rupp (2014), the contemporary cork industry is a global enterprise worth over \$4 billion. Most cork is used for wine stoppers with over 25 billion bottles each year sealed by the epidermis of mighty oak trees. The European cork industry produces 300,000 tonnes of cork per year, with a value of €1.5 billion, employing over 30 thousand people. Wine corks represent 15 per cent of cork usage by weight but 66 per cent of revenue. Portugal, Italy, Spain, and France play an important part in the industrial utilisation of cork. Portugal is the world leader with over 500 factories employing 20 thousand workers equipped with advanced machinery and technologies to produce a range of products from stoppers, to printing paper, cigarette tips to bathmats and fishing rod handles to space rocket insulation.

Although Cork Oak can now be found in various corners of the earth, it is native to southwest Europe and northwest Africa where it is suited to the climate characterised by abundant and evenly distributed rainfall, short summer dry periods tempered by atmospheric humidity, mild winters, clear skies, and plenty of sunshine; and deep, siliceous soils. The trees support diverse ecosystems and hence are protected species, with harvesting processes heavily legislated and regulated which prohibits stripping trees more than once every nine years. It is not until 38 years that the bark is considered suitable to produce wine stoppers. A cork oak lives for 150–200 years; and so, will be harvested 15 times during its life cycle.

Quercus suber forests have long been economically and culturally enmeshed within Mediterranean basin communities and span the vast rural landscape of around two million hectares. The forests sustain a rich biodiversity of endemisms as well as continuing to provide the major source of income to local communities. Moricca et al. (2016) claim that cork oak forests are increasingly under threat from human-mediated disturbances such as poor or inappropriate management practices, adverse environmental conditions (irregular water supply with prolonged drought periods) and pathogen and pest attacks. These adverse factors interact to cause a complex

disease referred to as oak decline; or an assemblage of feral disturbances where more and other-than human claim space and agency. The increase in scale and processes of capitalist extractivism has depleted the forests and created conditions and possibilities for feral disturbance-based ecologies to unfurl.

It is widely proclaimed that cork extraction from oak trees does not damage the tree. This might have been the case when artisans painstakingly removed bark from each tree with great care and sensitivity. However, Correia, Oliveira, Martins-Loução, and Catarino (1992) claim that as the intensification of cork forestry as a profitable industry has taken hold the effect of stripping on tree health threatens sustainable management. In addition to great water loss, stripping causes dangerous wounds that create pathways for many fungi including *Diplodia corticola* (Luque, Pera, & Parlade, 2008; Moricca et al., 2016). Not only are these trees depleted through rampant extractivism and a lack of response-able care, Leite, Oliveira, Lauw, & Pereira (2019) found that cork bark is perilously thin due to climate change; cork oaks struggle to grow back a layer of cork thick enough to harvest. Trees are engaged in adaptive processes in response to higher temperatures, reduced rainfall, and increased exposure to UV light, and an attempt to offset increased radiation levels. These are the feral effects of the Anthropocene that Tsing urges us to attune to. Intense extractivism characteristic of the Plantationocene causes environmental and capitalist devastation. Bark strippers are instructed to disinfect axes used to peel self-regenerating cork bark and to avoid over-stripping but this is an ongoing battle with *phytophthora cinnamomic*, a soil-carried fungus that attacks avocados in Central America, mauls Australia's eucalyptus, and has drastically reduced the supply of Portugal's sweet chestnuts. Brasier (2008) argues that given the current projections for climate change, with increasing mean temperatures and frequency of climatic extremes such as drought, floods, and storms in Europe, a proliferation of *Phytophthora* root rot may be expected, thus increasing the instability and vulnerability of oak forest ecosystems. Bergot et al (2014) predict that increasing temperatures will lead to higher annual rates of survival of *phytophthora cinnomomic*.

The granular storytelling presented in this paper with cork responds to Tsing's (2015) insistence that there is an imperative to tell 'really terrible stories about what is going on the world'. She argues that we put aside hopeful stories and relearn the arts of dystopian storytelling that is necessary for our ability to cultivate ways to think of the present as a complex tangle of times and places in which cultivating response-abilites and capacities to respond, matters.

The Mattering of Cork and Its Potential to Tell Other Stories about 'the Child'

This paper sought to take matter seriously in early childhood contexts and to pursue tentacular lines of enquiry to get at other images of the 'child'. Cork, as storyteller, has much to offer conceptualisations of the posthuman child that actively decentre the human subject but maintain a concern with the centrality of childhood in the Anthropocene. Observations from aesthetic explorations in a Norwegian kindergarten inspired a writing methodology that insisted upon embodied and affective encounters with cork that agitated deep excavation and uncomfortable storytelling. These multiple and interwoven stories across time and place matter because they underline the wider responsibilities and implications of daily practices undertaken by the early childhood teacher and researcher in the name of environmental education, but as Haraway (2016) stresses:

'The decisions and transformations so urgent in our times for learning again, or for the first time, how to become less deadly, more response-able, more attuned, more capable of surprise, more able to practice the arts of living and dying well in multispecies symbiosis, sympoiesis . . . on a damaged planet, must be made without guarantees or the expectation of harmony with those who are not oneself – and not safely, other either.' (p.98).

'Learning again' is something that those connected to early childhood might take to the heart of their practice; with a willingness to set aside a sense of mastery and expertise, possibilities are presented for child-like embodied, affective and sensory encounters that allow for attunement to the world's becoming in a different key. Everyday practices, that which routinely unfolds in early childhood pedagogy and research, have profound and often unseen impacts that can be traced backwards, forwards and that can be sensed in the present. Tentacular lines of enquiry underline the importance of thinking beyond narrow opportunities for creativity, hands-on exploration, and the child's connection to nature. It is by attending to opportunities created to consider worldly relationalities – as feltness, as affective, as atmospheric and ultimately feral and tentacular – that other ways to become-with children emerge.

Pushing past a narrow focus on the developmental child, and romanticised notions of childhood and nature has involved embracing speculative and uncertain possibilities which has broadened and deepened how 'the child' might be understood. By generating these uncomfortable narratives – stories that have unfurled from serious yet playful encounters with cork – we are forced to contemplate our infected and affected place in the world. It requires a recognition of our response-abilities to participate in world-making practices to make some sort of difference, however minor. Cork cannot be accepted as inanimate, 'natural' or apolitical – the stories it tells matter, particularly to the ways that we become-with children through their explorations and experimentations. In the spirit of 'worldly enquiry' we draw upon our situated knowledges and partial perspectives in a quest to contemplate childhoods as complexly global. Through practices of tentacular storytelling we have adventured along lines of enquiry, confronted sticky knots that have in turn agitated uncomfortable affects. This project has insisted that taking material objects found in early childhood contexts seriously other accounts of childhood and worldly relationalities become available – accounts that matter.

Acknowledgments. None.

Conflicts of Interest. The authors declared no potential conflict of interests with respect to the research, authorship, and/or publication of this article.

Financial Support. This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

Ethical Standards. None.

Notes

1 Tenterfield in Northern New South Wales, Australia has a special oak tree reputed to have been brought from England in 1861. It has become known as 'The Lucky Cork Tree'. It is addressed more fully later in this paper.

2 =https://ucmp.berkeley.edu/history/hooke.html?fbclid=IwAR3GGdBEJWqCr1-DJHwPt5btp6pEUL6gBlioemNGyu_OSYV3WK40wYRbNmA

References

- Alaimo, S.** (2010). *Bodily natures: Science, environment, and the material self*. Bloomington: Indiana University Press.
- Amundsen, B.** (2014). Life extinguishes in lonesome oaks. *ScienceNorway*. Retrieved December, 2021, from <https://sciencenorway.no/biodiversity-forskningno-fungus/life-extinguishes-in-lonesome-oaks/1411711>
- Bergot, M., Cloppet, E., Pérarnaud, V., Déqué, M., Marçais, B., & Desprez-Loustau, M.L.** (2014). Simulation of potential range expansion of oak disease caused by *Phytophthora cinnamomic* under climate change. *Global Change Biology*, 10, 1539–1552.
- Braidotti, R.** (2013). *The Posthuman*. Cambridge: Polity Press.
- Braidotti, R.** (2018). A theoretical framework for the critical humanities. *Theory, Culture & Society*, 36(6), 31–61. Special Issue: Transversal Posthumanities.
- Brasier, C.M.** (2008). The biosecurity threat to the UK and global environment from international trade in plants. *Plant Pathology*, 57, 792–808.

- Ciesla, W.M. (2002). *Non-wood forest products from temperate broad-leaved trees*. Rome: Food & Agriculture Organisation of the United Nations. Retrieved from <https://www.fao.org/3/y4351e/y4351e0a.htm#bm10.1.1.1>
- Correia, O.A., Oliveira, G., Martins-Loução, M.A., & Catarino, F.M. (1992). Effects of bark-stripping on the water relations of *Quercus suber* L. *Scientia Gerundensis*, 18, 195–204.
- Edwards, C., Gandini, L., & Forman, G. (2012). *The hundred languages of children: The Reggio-Emilia approach in early childhood education*. Santa Barbara: Praeger.
- Figureiredo, L., Krauss, J., Steffan-Dewenter, I., & Sarmiento-Cabral, J. (2019). Understanding extinction debts: spatio-temporal scales, mechanisms and a roadmap for future research. *Ecography*, 42, 1973–1990.
- Haraway, D.J. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies*, 14(3), 575–599.
- Haraway, D.J. (2008). *When species meet*. London: University of Minnesota Press.
- Haraway, D.J. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Durham, NC: Duke University Press.
- KD (2017). *Rammeplan for barnehagens innhold og oppgaver*. Oslo: Utdanningsdirektoratet.
- Kline, A.S. (2014). The Aeneid by Vergil: A translation into English prose. Diana's Concern for Camilla, BkXI: 532-596.
- Leite, C., Oliveira, V., Lauw, A., & Pereira, H. (2019). Cork rings suggest how to manage *Quercus suber* to mitigate the effects of climate changes. *Agricultural and Forest Meteorology*, 266-267, 12–19. DOI 10.1016/j.agrformet.2018.11.032.
- Luque, J., Pera, J., & Parlade, J. (2008). Evaluation of fungicides for the control of *Botryosphaeria corticola* on cork oak in Catalonia (NE Spain). *Forest Pathology*, 38, 147–155.
- Malaguzzi, L. (1998). History, ideas and basic philosophy. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The hundred languages of children: The Reggio-Emilia approach in early childhood education*. Norwood: Ablex.
- Mazzei, L., & Jackson, A.Y. (2012). *Thinking with theory in qualitative research*. London: Routledge.
- MioReggio (2022). About. Retrieved December 20, 2021, from www.mioreggio.com
- Moricca, S., Benedetto, L.T., Ginetti, B., Scanu, B., Franceschini, A., & Ragazzi, A. (2016). Endemic and emerging pathogens threatening cork oak trees: Management options for conserving a unique forest ecosystem. *Plant Disease*, 100(11), 2184–2193.
- Odegard, N. (2021). *Aesthetic explorations: With recycled materials. Concepts, ideas and phenomena that matter*. PhD Thesis, Oslo Metropolitan University.
- Osgood, J. (2020a). Becoming a 'mutated modest witness' in early childhood research. In C.M. Shulte (Ed.), *Ethics and research with young children: Personal pedagogies*. London: Bloomsbury.
- Osgood, J. (2020b). Queering understandings of how matter comes to matter in the baby room. In L. Moran, K. Reilly, & B. Brady (Eds.), *Narrating childhoods across contexts: Knowledge, environment, and relationships*. London: Palgrave Macmillan.
- Osgood, J. (2022). From multispecies tangles and Anthropocene muddles: What can lichen teach us about precarity and indeterminacy in early childhood. In C. Blyth & T.K. Aslanian (Eds.), *Children and the power of stories posthuman and autoethnographic perspectives in early childhood education*. Children: Global posthumanist perspectives and materialist theories. Singapore: Springer, 9789811692864.
- Osgood, J.A., Andersen, C.E., & Otterstad, A.M. (2022). Portal-time and wanderlines: what does virus-ing-with make possible in childhood research? *Reconceptualizing Educational Research Methodology*. ISSN 1892-042X.
- Reggio Children (2020). Identity. Retrieved December 8, 2021, from www.reggiochildren.it/identita/reggio-emilia-approach
- Rupp, R. (2014). Corked! *The National Geographic*. Retrieved December 20, 2021, from <https://www.nationalgeographic.com/culture/article/corked>
- Strom, K., Ringrose, J., Osgood, J. & Renold, E.J. (2019). Special issue, PhEmaterialism: Response-able research and pedagogy. *Reconceptualizing Educational Research Methodology*, 10, 2–3.
- Tenterfield Shire Council (2021). *Tree Management Plan*. Retrieved December 8, 2021, from www.tenterfield.nsw.gov.au/content/uploads/2021/01/updated-TENTERFIELD-SHIRE-COUNCIL-Tree-Management-Plan.pdf
- Tenterfield True (2021). *History of Tenterfield*. Retrieved December 8, 2021, from www.visittenterfield.com.au/things-to-do/history-heritage/history-of-tenterfield/indigenous-history
- The Common Ground Team (2021). *The Stolen Generations*. Retrieved December 8, 2021, from www.commonground.org.au/learn/the-stolen-generations
- Tsing, A.L. (2015). *The Mushroom at the end of the world: On the possibility of life in capitalist ruins*. Oxford: Princeton University Press.
- Tsing, A.L., & Bazzul, J. (2022). A Feral Atlas for the Anthropocene: An interview with Anna L. Tsing, Chapter 19. In M.F.G. Wallace, J. Bazzul, M. Higgins, & S. Talbert (Eds.), *Reimagining science education in the Anthropocene* (pp. 309–321). Cham: Palgrave Macmillan.
- Tsing, A.L., Deger, J., Saxena, A.K., & Zhou, F.E. (2020). *Feral Atlas: The more-than-human Anthropocene*. Redwood City: Stanford University Press. 10.21627/2020fa
- Tsing, A.L., Swanson, H., Gan, E., & Bubandt, N.E. (2017). *Arts of living on a damaged planet*. London: University of Minnesota Press.

Tuana, N. (2008). Viscous porosity: Witnessing Katrina. In S. Alaimo & S. Hekman (Eds.), *Material feminisms* (pp. 188–213). Bloomington: Indiana University Press.

Wallace, M.F.G., Bazzul, J., Higgins, M., & Talbert, S. (2022). Introduction. In *Reimagining science education in the Anthropocene*. Cham: Palgrave Macmillan.

Jayne Osgood is Professor of Childhood Studies at the Centre for Education Research & Scholarship, Middlesex University. Her work addresses issues of social justice through critical engagements with policy, curricular frameworks, and pedagogical approaches in ECEC. She has published extensively within the postmodernist paradigm with over 100 publications in the form of books, chapters and journal papers, her most recent books include *Feminists Researching Gendered Childhoods* (Bloomsbury, 2019) and *Postdevelopmental Approaches to Childhood Art* (Bloomsbury, 2019). She has served on the editorial boards of various journals and is a long-standing board member at *Contemporary Issues in Early Childhood*. She is currently editor at *Gender & Education Journal* and *Reconceptualising Education Research Methodology Journal*. She is also Book Series Editor for Bloomsbury (Feminist Thought in Childhood Research; and Postdevelopmental Approaches to Childhood) and Springer (Keythinkers in Education).

Nina Odegard is Associate Professor and University of South-Eastern Norway. Her recently completed PhD study focused on children's aesthetic explorations with recycled materials in a Reggio Emilia inspired kindergarten in Norway. She has several recent publications that contribute to posthumanist debates about young children and the Anthropocene.

Cite this article: Osgood, J., & Odegard, N. (2022). Crafting granular stories with child-like embodied, affective and sensory encounters that attune to the world's differential becoming. *Australian Journal of Environmental Education* 0, 1–15. <https://doi.org/10.1017/aee.2022.11>