



Becoming-with fire and rainforest: Emergent curriculum and pedagogies for planetary wellbeing

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Abstract

In this paper we propose the concept of 'becoming-with' in relation to the experience of the catastrophic fires in the summer of 2019–2020 in Australia, and their implications for research into young children's response to bushfires, and their learning about bushfire recovery, which resulted in the development of an arts-based project to explore emergent curriculum and pedagogies for planetary wellbeing. We draw on Deleuze and Guattari's theorising that 'the self is only a threshold, a door, a becoming between two multiplicities'; and 'Spatio-temporal relations' as 'not predicates of the thing but dimensions of multiplicities of events as encounters' to theorise how 'becoming-with' fires enabled the development of emergent curriculum and pedagogies in an early learning centre, which can ultimately contribute to planetary wellbeing.

Keywords: Becoming-with; bushfires; bushfire recovery; emergent curriculum and pedagogy; planetary wellbeing

Introduction: Beginning with Fire

In the summer season of 2019–2020, Australia experienced a climate emergency in the form of catastrophic fires that burnt an estimated 18.6 million hectares (186,000 square kilometres) of bush, destroyed over 5900 buildings (including 2779 homes) and killed at least 34 people directly, with an additional 4500 dying of smoke inhalation. An estimated one billion animals were killed and some endangered species could be driven to extinction. Scientists warned that this extreme heat is a function of climate change, causing conditions that are so volatile that they produce the types of intensity and early season burning that we do not normally see in Australia. By January 2020 the smoke had travelled 11,000 kilometres, across the Pacific Ocean reaching Chile and Argentina, alerting the world to a climate catastrophe of previously unknown proportions. Locally, the Gospers Mountain 'mega fire' burnt 444,000 hectares of ancient Gondwana Rainforest.

Gondwana Rainforests

The plants in Gondwana Rainforests date back to the ancient past and are the only examples that still exist on the planet today. The detail of animals and plants of the rainforest reveals their significance. Close to half of Australia's native plant species are found in these subtropical and temperate rainforests. There are ferns and conifers from some of the oldest lineages on Earth and members of primitive families of flowering plants. About 30 percent of Australian animal species inhabit these forests. Among them are two monotremes (the short-beaked echidna, the platypus) and 32 marsupials. Among the marsupials are the red-necked pademelon and the red-legged

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pademelon. Bird families of ancient lineages include lyrebirds, scrub-birds, and bowerbirds. Geckos, dragon lizards, skinks, and snakes number in total 140 species; frogs number 45 kinds, including some relicts (Woodward, 1997).

The self as a threshold or door between two multiplicities

According to Deleuze and Guattari, 'the self is only a threshold, a door, a becoming between two multiplicities: If we imagined the position of a fascinated Self, it was because the multiplicity toward which it leans, stretching to the breaking point, is the continuation of another multiplicity that works it and strains it from the inside (Deleuze & Guattari, 1987, 249). Each multiplicity is symbiotic; its becoming ties together animals, plants, microorganisms, mad particles, a whole galaxy (Deleuze & Guattari, 1987, 249).

Fires as multiple becomings

In the Deleuzean sense, the fires can be understood as multiple becomings, for all of the beings who inhabited the fires, its plants, its animals, its microorganisms, its mad particles, and a whole galaxy as the smoke circumnavigates planet Earth. All are becoming with flames, becoming with smoke, becoming with death of animals, and becoming with death of humans, including the fire-fighters who died fighting the fires. Ultimately, all are becoming with the fires as a 'Spatio-temporal assemblage'.

Spatio-temporal assemblages of events as encounters

'Spatio-temporal relations, determinations, are not predicates of the thing but dimensions of multiplicities. We are all five o'clock in the evening, or another hour, or rather two hours simultaneously, the optimal and the pessimal, noon-midnight, but distributed in a variable fashion. Climate, wind, season, and hour are not of another nature than the things, animals, or people that populate them, follow them, sleep and awaken within them. This should be read without a pause: the animal-stalks-at-five-o'clock. The becoming-evening, becoming-night of an animal, blood nuptials. Five o'clock is this animal! This animal is this place! (Deleuze & Guattari, 1987, 263).

Fires as spatio-temporal assemblages of events as encounters

The fires can be understood as spatio-temporal assemblages of events as encounters. They are climate, wind, season, hour and dimensions of multiplicities, including all the living creatures, plants, and animals simultaneously immersed in the fires and their impacts. The fires have their own mobilities too, and we experience their movements as they travel through different bushlands.

Fires as the 'floating, nonpulsed time proper to Aeon'.

The fires move from place to place, raging in different forests at different times and the smoke arrives from their different directions telling us all where the latest fire is burning. The 'Gospers Mountain Fire' blows smoke from a northerly direction, and the 'Green Wattle Creek Fire' blows from the South. Blackened leaves fall from the sky, blowing with the smoke and wind, and dropping onto the parched earth. The media is fully integrated into this assemblage as it is imperative that everyone knows how close the fire is to them and whether they have to evacuate, to leave their home, in order to stay safe. We are all exposed to the daily spectacle of fires in every other place and on some occasions, we see the terror of people with nowhere to go, crowding onto beaches to

be near the sea to escape the deadly flames and intolerable heat. The time of the fires truly becomes 'the floating, nonpulsed time proper to Aeon, in other words, the time of the pure event or of becoming, which articulates relative speeds and slownesses independently of the chronometric or chronological values that time assumes in the other modes' (Deleuze & Guattari, 1987, 263).

Planetary Literacies through Bushfires and Bushfire Recovery Project

It was during this time of multiple becomings-with fires that 'the bushfire project' began, an artsbased project initiated in response to young children's experiences of the fires at an Early Learning and Long Day Care Centre for children from 0 to 5 years of age at the foot of Sydney's Blue Mountains, one of the epicentres of fires. The project began with a single child's experience and developed increasing momentum over time, evolving to create emergent curriculum and pedagogies in relation to young children's responses to bushfires and bushfire recovery. For everyone involved in the project, including all of the children, the educators, the director, and the researchers, the fire represented multiple becomings. We were all simultaneously becoming-with fires, and all of the beings who inhabited the fires: its plants, its animals, its flames, its smoke, its multiple deaths of animals, and humans, including the firefighters who died fighting the fires. Ultimately, we were all becoming-with climate.

Beginning with Lucas

The first child to arrive at Djaralingi during the fire season was Lucas¹ (3¹/₂ years). His mother explained to Tessa, the Director, that they had to evacuate from the South Coast of NSW where the fires were raging, and it took them over 12 hours, driving through burning bushlands, being stopped repeatedly by the police, and waiting until the road ahead was cleared of flames before progressing to the next safe point. Lucas' mother said she was worried that he might still be traumatised by his experience of the fires and Tessa promised to keep an extra close eye on him and asked him what he wanted to do.

Child initiated drawing/paintings

Lucas asked if he could do a drawing, so Tessa took him to the drawing table. He sat, picked up the red crayon, and began to draw. 'It's fire', he stated, very matter of fact. Tessa asked if he had seen the fires? He nodded, then said he was in the car for a long time, and the trees were burning near them. He reached for the black crayon and drew again — this was 'after the fire had gone'. When the paintings were done, Tessa and Lucas talked quietly together, just the two of them, about what he had seen and how it felt. 'I was a bit scared', he whispered.

Lucas' becoming-with fire

It is possible to imagine Lucas' becoming-with fires as the position of a fascinated Self, leaning towards the multiplicity of fires stretching to the breaking point, where the self is no longer a bounded being but is a continuation of the multiplicity of fires. His whole being 'works it and strains it from the inside as a becoming between two multiplicities' (Deleuze & Guattari, 1987, 249). After the fires emerged in a drawing, he was able to find words to describe his experience as the fires had now become something outside of himself.



Lucas: This is the fire I drove through.

Lucas' tiny fire?

In contemplating his drawing, it is possible to imagine that the tiny fire represented in the drawing, and its containment within the image, helped Lucas to gain some sense of control over the trauma of those 12 hours of driving through raging fires and the ability to name his experience.

Becoming-with fire through Painting for all of the Children

Following Lucas' initiation, paints were supplied so that all of the other children could engage in the same creative practices of painting and storytelling, and like Lucas, they were able to express both their direct experiences of the fires, and their indirect exposure through the media. The educators assisted the children to describe their experiences by writing down their stories, so they appeared at the bottom of their paintings. They were displayed on the walls of the Centre so the children could see and feel what others had experienced.



Robyn: The black went round and the red is very hot.



Kerry: The red spots are the fires but the grey ones are the homes. The long line is the road to the sea.



Rosie: The koalas fur with fire on it this is the koalas will go to heaven.

Emergent Curriculum and Pedagogies

The project continued to develop emergent arts-based methodologies in response to children's multiple becomings-with fires and the changing planetary forces to which they were exposed. Our previous work explores children's creative becomings through emergent curriculum and becomings-with the world and meaning-making (Powell & Somerville, 2020; Somerville & Powell, 2019; Somerville et al., 2020, 2019). The evolving arts-based methods included painting, singing, storytelling, craft work, making forests, making story books, and planting native gardens.

Becoming-with Plant Regeneration and Injured Animals.

The children's becoming-withs changed when the experiences and stories moved from fires, death and loss to a focus on recovery, and they became-with recovery and regeneration of burnt lands, and animal survival, tending the injured animals in a vet clinic to make them well again before they were released back into the wild.

Becoming-with Native Shrubs and Trees and Indigenous Food Plants

The focus on recovery continued with children becoming-with regrowth and regeneration through planting native shrubs and trees, Indigenous food plants (bush tucker), creating a forest, and bringing more native birds to the playground.

Becoming-with Forest and Water like a Dam

Educator Carol Pisano was drawn in by children's activities of planting a forest and documented it in the following:

Martin & Tim walked around the yard picking up branches that came from the trees and brought them into the sandpit. Martin grabbed the shovel and began to dig a hole in the sand. Martin placed one of the branches into the hole he had dug in the sand and said, 'I am making a forest'. Tim worked alongside Martin, digging the holes and placing the branches close to each other. Martin said to Tim, 'We are planting lots of trees so that the animals will have food again'. Martin said, 'I'm planting gum trees because the koalas need them after they got burnt'. Other children, 'We are planting the trees for the forest'. The Educator asked, 'How are we going to keep the forest alive?' Martin replied, 'With water ... We will dig a hole and fill it with water so that it can go under the ground ... Like a dam'. The children dug holes and sourced water from the water trough, filling the holes up to the top. Martin had filled the hole

and explained, 'The water will go under the ground'. They drew a picture of the forest using charcoal, asking lots of questions about the black charcoal and talking about what it felt like. They made a book of the forest planting.







Storybook.

Planting our forest.

Charcoal drawing.

Becoming-with Australian Indigenous Knowledges

There was a strong emphasis in all of the different age groups to embed Aboriginal content consistently, including the Dreaming story of *Tiddalick: the frog who caused a flood*, and more contemporary stories, such as *Big Rain Coming* (Germein, 2017). Tessa also contacted Jason from *Dalmarri*, an Aboriginal organisation, to ask him to come out to do a burn off of the Australian native grass plant, *lomandra*, which had become unruly in the bush tucker garden, to demonstrate Aboriginal fire practices for the children because traditional Aboriginal land management practices were enacted to ensure the areas of bush that were burned encouraged regeneration of the plants, rather than the destruction of them. They learned that materials such as charcoal were gathered and used in paint making, for ceremony and art, and as such, seeing the bushfires as an opportunity rather than absolute destruction.

Becoming-with Gum Trees: Boori Babies (0-2 yrs)



Myoora Jarrah and cockatoo friends.



Possum in the roof! Babies group.



Koala returned to the wild.

Educator Rebecca Rand created an environment in the babies' room which resembled the Australian bush, using lots of gum leaves. Care of Australian native animals became the focus for this room. With a large number of babies under 12 months, focusing on the sensory components first provided children with a full experience of the 'bush' without leaving the centre. Multiple branches of eucalypt trees were hung from the beams, providing a natural scent throughout the room. Infants lay on their backs looking at the branches, leaves moving in the breeze of the air conditioning because temperatures were still well above 30 degrees daily. Next, we added a range of Australian animals and birds to the branches — kookaburras, cockatoos, galahs, a possum and a koala (both soft toys). These very young children became-with the scent of the eucalypts leaves, and their movement in the light and air. Myoora Jarrah (the koalas) and the cockatoos suspended in the trees above them became part of their everyday worlds.

Becoming-with through Caring for Plants

Educator Rebecca Rand shared the children's experience of caring for donated plants: 'During the morning, I asked Sharon, Carl and Hilary if they would like to water our plants, to which Carl and Hilary instantly walked to the sand pit and picked up watering cans! I helped Sharon to find a watering can, then all four of us walked over to the tap to begin filling up the watering cans. Once full, Carl began walking down towards the garden, and Sharon and Hilary weren't far behind! As the gate opened, you could see a look of excitement on Carl's face as he recognised the plants that we had potted last week and began walking towards them. Hilary and Sharon followed, then copied him as I talked about plants requiring water and sunlight to live and grow. Sharon experimented with the watering can as she tried watering from various angles, before discovering the nozzle needs to face down. It didn't take them long to notice the vegetable garden, which was created only a few days earlier at the working bee. As Carl walked towards the vegetable garden with his watering can, Sharon and Hilary followed then imitated him by watering the vegetables too.

Becoming-with Water and Rocks

The watering continued as it is bound to do with new experiments with rocks, water and splashing. Rebecca explained how Carl, Nick, Elena and herself decided to go for a walk down to the vegetable garden to investigate new growth on our potted plants. As Carl entered the garden, he expressed his excitement as he walked straight towards the plants and noticed some changes. He carried his bucket over to the plants before putting it down and moving in for closer observation. He then picked up the plant and held it out towards Bec almost as if to say, 'look at our plant!'. Meanwhile, Elena had found the bird bath and had begun exploring the water with her hands. Carl noticed the sound of the splashing and walked over to enquire what she was doing. He began imitating her actions and joining in her play as he splashed his hands in the water alongside her, laughing along too! As Carl and Elena explored the water, Nick was busy investigating some large rocks he had found on the ground. They had various patterns on them, and he used his fingers to investigate its texture. It wasn't long before Carl joined Nick in this enquiry. Something seemed to spark in Carl, curiosity, or a question, as he suddenly stood up and picked up a large rock and began to walk with purpose over to the bird bath. He then lifted the rock up, and threw it straight into the bird bath where the water splashed everywhere! He then walked with intention over to the garden and picked up some dirt, then returned to the bird bath and threw it in the water.

Elena joined in and provided some language to this spontaneous experience such as 'cold water, splashing, wet hands, rocks, happy, and excited'. In doing this, new words were born in their becoming-with water. Carl then noticed the green plants growing on the ground and walked over

to it where he began pointing at a purple flower. I explained to him that he had found a flower and he repeated, 'ower', again giving birth to new words from his becoming-with plants.

Becoming-with splashing water and rocks is a profoundly sensory experience for the children as opposed to the more gentle caring and tending that leads to new language.

Their becoming-with plants continued to grow and was included in their daily routine! Carl was the leader in this as he initiated the care by heading straight down to the gate saying, 'water'. Today though, he noticed a new flower in the garden. He walked over to it, lent in and took in a deep breath in and expressed, 'ahhh'. He then found a watering can and began saying, 'water'!



Smelling the flowers.



Watering the flowers.

Can we find some birds?

Boori Toddlers (2–3 yrs) Becoming-with Fire and Regeneration through Creative Practice

Educator Monique Francis explained that at first, they did fire paintings 'cause they were very interested in the days we couldn't go outside because it was smoky and we weren't allowed out there, so we spoke about the fires, what happens, like, what fires can do, we need safety, so what happens when you see a fire, like do we touch fire? 'No, it's hot' so yeah, we incorporated that and we also had a tank display in Bindi's old fish tank, and we set that up with all the Australian animals and then we did regeneration, so we did lots of green on one side and lots of burnt leaves on the other side to show the process of regeneration. This is what it looks like now, but, in time, if we replant trees, this is what will happen, and we did a few experiences, such as growing seeds, and potting plants, just to show them that cycle of it starts with nothing, and then it turns into something.



Fish tank display fires.



Fish tank display regeneration.

Becoming-with Australian Native Animals

Educator Monique explained that they focused on fires and regeneration at first, and then they had to follow the toddlers' changing interests in their emergent curriculum. They began to learn about the habitat of all the different animals, where they live, and what happens if they don't have that habitat any more. The children had a choice of which animal they wanted to pick each week, using cards with pictures of Australian animals. Each week they had group time and they got to pick 'What's your favourite animal this week?' They used pegs to indicate their choice.

Becoming-with Possum in a Tree

We made a tree with paper, cut it all out, and then we went into the garden and collected allnatural resources, painted it, like a collage, and attached it to the wall. Monique constructed a possum nesting box with the children, recycling a cardboard box. Once completed, Monique attached a picture of a possum to the inside of the box, and it was hung on the wall next to the tree the toddlers had created using dirt, found leaves, bark and cardboard.



Tree installation.



Possum nest box.

Craft work: Becoming-with Trees through a Living Tree Installation

The preschool children created a tree, made from gum tree branches, bark and a large stump, woven and tied together, with seed pods and other found items added here and there. This was placed in the middle of the room, with a large mat for a yarning circle (traditional Aboriginal practice of collective conversation) placed underneath it. It was eventually moved outside to make way for the Lilli Pilli tree to be constructed, indicating the change of seasons based on the Darug calendar of 6 seasons. Once outside, the 'tree' began to change colour and developed a patina of its own, and after several weeks, children still come to it to add in something new they have found — leaves, bark, pods, etc.



Through their direct sensory engagement with the materials of the tree, its leaves, bark, pods and its changes over time, children became-with the tree's natural processes.

Becoming-with Rainforest: Moving on: Emergent Curriculum

Becoming-with animals through making their sounds

In the beginning of the rainforest project, the educators explored the children's interests with a small group of children to introduce the concept of the rainforest. Within this group time the children showed a strong interest in the sounds and movements of a range of animals. This was then implemented into the planning of the next activity for the children. This is where the next group time came from, which consisted of having a visual display of animals within the rainforest. The aim of this was to gain an understanding of the children's prior knowledge and drawing upon previous experiences to be able to not only identify the name of animals but also characteristics such as what noise they make. The children looked at the visual display and were able to verbally communicate what they were seeing.

Becoming-with rainforest through story

Margaret sat with a group of children when Monique introduced the children to the rainforest by reading a storybook: 'Who are you? In the rainforest'. She showed the cover of the book to the children so they could talk about what they could see. As the children studied the cover, some of the older children shared what they found. Christian excitedly said, 'giraffe' and Declan exclaimed with great enthusiasm and a very deep voice, 'crocodile'.

As they read the story lots of different animals that could be found in the rainforest were introduced. As each new animal was presented on the page, they spent some time discussing as a group who was this animal, what noises they may make and how they would move around.

Becoming-with rainforest animals

Through exploring each different animal that could be found in the rainforest and what noises they make the children began to interact with each other through their rainforest animals becomings: Scarlet saw the tiger and yelled, 'ROAR!!!', which then turned all our children into tigers as they brought their hands near their own faces to create claws and all began to 'ROAR' EVERYWHERE. Christian found the orangutan on the page with a baby orangutan on its back and he shared, 'monkey, he is so funny on his daddy'.

Becoming-with through animal movement

As each of the animals were introduced they spoke about how they would move around and Declan and Christian invented what they called, 'The Great Animal Movement'. 'The Great Animal Movement' involved Declan and Christian seeing each of the animals on the pages, listening to the conversations about how they move (fly, swim, swing) and acting out their movements. It only took a few wild movements before there was a herd of animals flapping their wings like a toucan; swinging in the trees like orangutans; snapping their jaws (arms and hands) like crocodiles; slithering like a snake; prowling like a tiger; walking like an armadillo; and climbing a tree like a chameleon. Through their rainforest animal becomings the children literally become these animals in their movements, vocalisations, and behaviours.

Linking Rainforest Animals to a Creative Arts Experience

The children were introduced to a craft medium called a Scratch Board in the snake shape template. This particular product allowed the children to scratch directly onto the surface and their drawings will appear multicolour! Throughout this experience the children were encouraged to share what they knew about snakes and we got some great responses:

Jovana: 'snake, sssssss' Christian: 'snake goes on his belly' Scarlet: 'snake snake sssss' James: 'snake belly snake belly, tounge sssss'

Becoming-with through Turning the Centre into Rainforest

Visual displays of what a rainforest looks like were also shown to the children so that they have an understanding of what they look like. This way when we dive deeper into the project they can apply what they are learning to places they visit.

Declan: 'anaconda' Scarlet: 'fly' (does arm actions and points to the butterfly image) Grace: 'butterfly, blue and black' Christian: 'Toucan, I see toucans at my zoo' Declan: 'Tiger Rarrrr' Christian: 'I have a panther at my house, black and white' Nathan: 'Rarrrrr'

As the children were going through the visual display of the animals some of the children pointed to specific animals: 'what sound he make?'. Due to the educator being unsure this was then used as an intentional teaching moment where the children's curiosity and questions could be explored and answered through using the iPad. A video was put up which explored sounds of animals in the rainforest. The children were able to make connections between the previous display of animals and used this to transfer knowledge to this animal sound activity. While listening to the animal sounds the children mimicked what they were hearing and even mimicked the actions of some of the animals (e.g. flapping their arms to symbolise a bird).

The children attended this group time with such interest and this was evident through their concentration skills and the continuous observations and commentary on what they were viewing.

Christian: 'water, rainforest is green. Toucan is having a bath'

Declan: 'Armadillo . . . has long tail'

Christian: 'That's so cute' (bearcat)

Nathan: 'scary' (tiger) Declan: 'I like monkeys' Christian: 'piranhas tickle' Nathan: 'snap, snap, snap' (crocodile) Scarlet: 'Rarrr' Scarlet: 'turtle' (when she saw water)

Becoming-with through a Walk in the Jungle

The children went for a walk in the jungle while listening to the song, 'Walking in the Jungle' by Super Simple Learning. They all started to walk around the room following along with the directions of the song, firstly walking and then took 4 steps and 4 steps more before we stopped and heard a strange sound. We all held our hands up to our ears to listen to the sound and to try and work out what animal could be making that sound, Declan shouted out, 'a frog' then Christian and Scarlet both shouted out, 'frog' and Christian said, 'ribbet, ribbet'.

We decided that we aren't afraid of frogs so we kept going on our walk.

'It's a bird!' Declan exclaimed excitedly. We then started to flap our arms and make 'tweet, tweet' noises, James seemed particularly excited to be a bird and had a huge smile on his face as he flapped his arms and said, 'tweet'. We definitely weren't scared of birds so we then started to skip through the jungle instead. Off we went skipping around the room, one step, two steps, three steps, four, STOP, 'what's that sound?' Jade asked as a slow grumble noise steadily got louder and louder. 'Tiger' James shouted, before Declan, Christian and Scarlet all joined in shouting 'tiger' and making 'AHHH' scream noises. We are afraid of tigers we decided, we quickly ran around the room and found a spot to hide away from the tiger where we were safe.

After this Children All Came Together to Discuss Rainforests and Why Trees are Important

Kalane: 'they can grow seeds'; Logan: 'they can breathe'; Safya: 'make us breathe'; Lucy: 'they help us sing'; Ryder: 'they make shade'; Daniel: 'no trees no breathing'; Hugh: 'monkeys in the trees'; Hayley: 'we need trees to grow Earth'; Camilla: 'leaves'; Harin: 'they have leaves'; Raon: 'tigers in trees'; Ryder: 'they have trees'; Lewis: 'has rain'; Daniel: 'to block the rain'; Natalia: 'they have hearts'; Lewis: 'we have hearts too'.

Conclusion

In this paper we explore the bushfires and rainforest as multiplicities of becoming as the children responded to disaster and recovery, expressed through a variety of emergent, creative, and responsive activities and artefacts. Educators, researchers, and children are all immersed in becoming-

with the bushfires and the possibilities of recovery. The children stand on the threshold between these multiplicities, each existing together in a spatio-temporal relationship of becoming-with, each one a reality as the threshold is crossed. Children's perception and experience of events come into being, are given shape, as they step into a process of becoming-with bushfire or becomingwith rainforest and between the two. Each relies on the other to be reached but never complete, in a constant state of becoming. These becomings are never finished, but offer continuous opportunities for children to explore and respond to the wellbeing of the planet.

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All photos have been used with permission and within University ethics approval process.

Note

1 All children's names have been changed to ensure anonymity.

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