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Editorial

Encountering naturecultures in the urban Anthropocene

We are in an era where the human impact on the planet is so widespread and threatening to warrant its designation as a geological era – the Anthropocene. Although such a designation is both unconfirmed and veers away from traditional ways of defining geological epochs, humans in the form of "universal man" are once again centred. This naming that alerts us, draws public attention and calls for individual/collective action is therefore ironic but also problematic (Haraway, 2016; Head, 2016; Castree, 2015; Gibson et al., 2015; Yusoff, 2015). This Special Issue therefore seeks to diversify and expand understanding of the Anthropocene by unpacking what this era means for the discipline of Geography that welcomes risky acts of thinking differently in urban settings. In such thinking, the research presented here suggests that divergences in inhabiting the urban theoretically and empirically are crucial to invoking multiple futures for the Earth.

In invoking these futures, the contributors to this Special Issue acknowledge the damaging impacts of human mastery but also move beyond the language of castastrophe through creative insights that entangle the diversity of life and non-life in cities. Snakes, dugongs, crocodiles, shellfish, turtles, ants, insects, bacteria, trans-species, volcanic plains grasslands, offshore reefs, woodlands, pandanus, living Country, pedestrian bridges as well as multispecies 'strays' and friends produce urban worlds that decentre human exceptionalism. As geographers and geography-kin we revisit and mingle theoretical strands from feminist geophilosophy, science and technology studies, posthumanism, vital materialism, affect theory, Indigenous theories as well as insights from religious texts (Braidotti, 2013, 2014; Bosworth, 2017; Colebrook and Weinstein, 2015; Haraway, 2016; Latour, 2018; Stengers, 2015; van der Tuin and Dolphijn, 2010; Yusoff, 2015).

We enrich Anthropocene thinking with southern knowledges on multispecies justice as well as earthly worlds of coexistence. Resonating with the work of Connell et al. (2018) and Muecke (2018), we emphasise a broader understanding of southern knowledge that include antipodean insights of urban Scotland, urban Australia and its "Global South" (remote northern Australia) as well as insights from Indian cities that are traditionally placed within the Global South. In engaging in this political act we recognise how these places have historically been affected by brutal urbanising practices of white colonial heroes that might be reproduced rather than challenged in the Anthropocene if we look back but fail to interrogate the singular origin story of 'man', 'the urban' and the Earth (Haraway, 2016; Yusoff, 2015). For instance, if we align the Anthropocene with Kali Yuga or Hindu comologies it becomes possible to explore diverse multispecies stories, but the risk is the reproduction of a Brahminical social order and caste hierarchies. In countries of the Global South like India, these hierarchies stigmatise everyday practices among Dalits/lower caste Hindus and religious minorities (Rawat and Satyanarayana, 2016). In societies with white majority cultures, these power hierarchies are reproduced when diasporic minorities fail to satisfy the lust for authentic knowledges from the Global South within the western academy (Lobo, 2019). How can we look back and forth in ways that are inclusive of diverse human and more-than-human worlds and build on the scholarship published to date in this journal.

It wasn't until 2013 that a number of articles that take the Anthropocene as its climatic context began to populate the contents of the journal's issues, including research on climate security (Dalby, 2013), localised responses to adaptation (Ireland and McKinnon, 2013), the biopolitics of re-wilding cattle (Lorimer and Driessen, 2013), and the affective labour of environmentalism (Singh, 2013). As of May 2019, there are 36 research articles in *Geoforum* that interrogate, in some way, the designation of the Anthropocene as a geosocial concept. Common themes pivot around temporality (Fincher et al., 2014; Gibson and Warren, 2019; Lane, 2019), Indigeneity (Hope, 2017; Curley, 2018; Escobar, 2019), rewilding (Lorimer and Driessen, 2013; Jørgensen, 2015) and the nature-culture dichotomy (Apostolopoulou and Adams, 2019; Banoub, 2018; Bergmann, 2017; Biermann, 2016; Braverman, 2014). Whilst themes that we interrogate such as the non-human, the urban, the planetary, climatic change, indigeneity and conservation are introduced within this body of research, there is a lack of detail that develops the empirical status of cultural, social and political divergences, particularly in relation to their urban orthodoxy. More theoretical accounts address the psychosocial effects of living with Anthropocenic death anxieties (Walton and Shaw, 2015) and the history of geologic and stratigraphic literature that informs our definitions of the Anthropocene (Veland and Lynch, 2016), giving some indication of the political implications. However, as this Special Issue demonstrates, there is a need to collect, collate and complicate the varying themes, muses and arguments into a theoretically-engaging empirically-informed revisionining of the urban Anthropocene. This requires a practice of looking back and moving forward with uncomfortable pasts, presents and futures, seeking out diverse more-than-human naturecultures to encounter and inhabit.

1. Looking back

Humans produce more reactive nitrogen than all other terrestrial processes combined while agriculture, construction and mining move more earth than do the natural processes of rock uplift and erosion (Rolston, 2017). These and other human processes are altering the very composition of the atmosphere, the soil, levels of biodiversity and energy flows to produce whole new ecosystems (Rolston, 2017). As the "great acceleration" of species loss, sea level rise and greenhouse gas emissions devastate the planet, there is a particular need to focus on the urban scale as cities are home to the majority of the human population and 75% of global economic production takes place in urban areas

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(Steffan et al., 2015). The phenomenal increases in CO_2 emissions, ocean acidification, species extinction, sea level rise and forest loss are all associated with the rise in urbanisation across the globe (Steffan, 2017). Besides population, cities concentrate disproportional parts of the economy, resource consumption and the decision-making power in most countries – Cities are responsible for 67% of the total global energy consumption and more than 70% of greenhouse gas emissions, and these trends significantly intensify the severity of some of the two great challenges of our time; climate change and energy security (http://urban.ias.unu.edu/index.php/cities-and-climate-change/ Accessed 23.6.2017). Cities then have enormous ecological footprints. As the majority of the global population now resides in places designated as "urban", it is these settlements which are the most vulnerable but also the major contributors to planetary level ecological impacts. While cities existed in the pre-modern era, the contemporary city often acts as a vortex that sucks in everything of value and grows by engulfing surrounding rural areas. The contemporary city in both the developing and developed world is therefore deeply implicated in altering global ecosystems in ways that have not always aligned with producing diverse, sustainable and just more-than-human worlds.

Reactions to the challenge of human induced planetary change range from the technical, to the political and the conceptual. There have been a series of global agreements to reduce emissions – at Kyoto and more recently at Paris. However, in response to the unrelenting rise in CO_2 emissions and the inability of global agreements to be reached or lower targets to be met, the Australian government's CSIRO is advocating work on "safe, economic and environmentally acceptable means of sequestering CO_2 from the atmosphere". In the process they discount as dangerous and too expensive other suggestions for "solar radiation management by injecting sulfate aerosols into the atmosphere" (Arber et al., 2016). To date therefore, political and technical "solutions" have proven limited in their effectiveness, though they are on the global agenda. However, as Foster notes (2016, p. 13) "solutions" such as carbon markets and geoengineering deny and ignore the root cause of our current crisis which he sees as capital accumulation. To such an observation can be added Enlightenment ways of thinking. Solutions then so far – especially of a scientific and technical nature – have tended to replicate the socio-economic relations and ways of thinking which have produced the problem. Further, they also tend to be devised and enacted within the same mind sets that produced the separation of humans from "nature" that precipitated the current crisis. New ways of theorising and acting are therefore urgently needed if we are to avert looming catastrophes and the survival of the earth and all that lives upon it.

2. Moving forward

To date there have been a number of alternatives to Enlightenment based binary thinking of nature and culture. In this Special Issue, we offer a number of conceptual responses to the challenges posed by the Anthropocene that have historically produced a nature/culture binary through western masculinist knowledges and power hierarchies. Naturecultures or entangled human and more-than-human worlds unsettle understanding of nature as pristine and culture as the realm of human activity. What follow is a series of papers that rethinks the notion of naturecultures, a bringing together of categories and cultures long separated by Enlightenment thinking and industrial capitalism. A focus on *naturecultures* in the urban Anthropocene is necessary given older discussions about sustainable development and newer debates on planetary urbanisation that draw attention to the economic, social and environmental impact of cities (Castree, 2015; Dalby, 2016; Merrifield, 2014, Brenner and Schmidt, 2014). Although these debates alert us to an impending ecological crisis where the future of humans and other species is severely threatened, it also opens up possibilities to invoke "imaginative opportunities" (Hulme, 2015: 324) that can better respond to the challenges of anthropogenic climate change (Latour, 2014). Thus Castree and Head (2008) suggest approaches that challenge and reconfigure many of the dualisms that underpin the current era – arguing for a greater engagement with the specifics of place and work that destabilise the boundaries between nature and the city, which sees humans and nature as mutually constitutive as naturecultures.

This Special Issue responds to these calls to think, research, but also to act differently in the Anthropocene. By centring the urban, it speculates about possibilities for the future by drawing attention to the diversity of place-based ecological knowledges, multispecies encounters and the vitality of a more-than-human world at different locations and scales. By valuing difference, interrogating the nature/culture split and questioning the universalised nature of humanity, we aim to give a different perspective on the Anthropocene while also offering conceptual tools for its negotiation.

Geographers are particularly well positioned to "embrace the political, ethical and spiritual" dimensions of this problematic (Castree, 2015; Hulme, 2015: 324). Castree argues that notions like assemblage, hybridity and post-humanism provide "fertile entry points" for different styles of "joined-up actionable research" (2015: 310). Papers in this Special Issue all offer concrete ways in which these approaches have generated actions within existing environments to alter their conceptualisation and human-centred exploitation. Hulme argues that social changes rendered imperative by the realities of climate change are "often inspired through stories of meaning and purpose embodied and lived out in communities, neighbourhoods and networks" (2015: 324). The urban locale of such actions is increasingly important as cites assume global proportions and accommodate most of humanity (Brenner and Schmidt, 2014; Madden, 2012; Ruddick, 2015). Local stories therefore have much wider effects and affects. A human geography of the Anthropocene therefore can and should involve extending the post-human perspective to interrogate and act in the urban, now recognised as global and boundless (Castree et al., 2010). This Special Issue builds on work by Australian geographers who engage with the conceptual and ethical implications of thinking and living differently in a world newly sensitized to the devastating impacts of the current human economy (such as Gibson et al., 2015; Christoff, 2016; Head, 2016). Many of the papers are firmly anchored in the colonial history of the country – particularly by David Kelly, Michele Lobo and Lesley Instone – and, as such, draw productively on Indigenous conceptualisations of "Country" as a powerful alternative way of thinking but also acting in the Anthropocene.

The papers also offer multi-sensory perspectives on nature-cultures that can inform the way we attune to difference (Barry; Duffy, Gallagher and Waitt; and Lobo). Human-centred approaches are unsettled through a focus on animals – such as snakes in Indian cities (Narayanan), the grasslands on the Volcanic Pains of Western Victoria (Instone) and offshore reefs (Lobo). Other papers provide new understandings of urbannatures through attention to the 'wild' in cities (Steele, Weisel and Maller) and the actions of moving across and with a pedestrian bridge (Barry). The papers create the foundation for an effective environmental politics that in many instances incorporates Indigenous Australians understandings and interactions with Country (Kelly; Instone; and Lobo) while also presenting new approaches and research methodologies for engaging with the urban Anthropocene. Such methodological approaches include autoethographic approaches, (Barry), walk-along sensory ethnographies (Duffy, Gallagher and Wait; and Lobo), felt pedagogies (Kelly), photos (Barry), sonic recordings (Duffy, Gallagher and Wait) and participatory videos/film (Lobo), as well as assemblage-methods of diagramming and sketching that contribute to a more-than-human politics and ethics.

Thus, in their opening paper Wendy Steele, Ilan Wiesel and Cecily Maller explore the notion of the "urban wild" as one way to rethink human exceptionalism and elaborate on how the co-existence of humans and non-humans can be conceptualised. Using the notion of the 'assemblage' to bring together people, materials, things and practices

within the city, they present three different ways to think, represent and act in the urban Anthropocene. They suggest *transformational mapping* as one way to address knowledge gaps in the "mismatched orbit" of human and non-humans; a *diagrammatic* focus on the interconnection and encounters between human and non-humans and finally propose *sketching* as a way to imagine and engage the urban environment as comprising "stray" or "friend". Here then are new approaches and conceptual tools to decentre the human and connect the human to nature/urban/cultures or wild cities which involve care and respect.

Lesley Instone looks at the fate of native grasslands across the volcanic plains of Western Victoria, an area which also includes the major metropolitan centre of Melbourne. She brings together key theorists that allow a rethinking *with* the grasslands. In this exercise, she traverses the history of this area to unpack the different ways in which the human-non-human and more-than-human elements have been assembled at different points in time to create "asymmetrical co-shapings" or varying assessments and modifications of these grasslands. Thus in honouring the divergences of Isabelle Stenger's, Instone focuses on the geological or Elizabeth Povinelli's geontology and Reinert's geologic conviviality to highlight three very different valuations of these landscapes – by the colonial settler, the nativist conservationist and Indigenous peoples. These same concepts inform an account of just how the grassland grows through the interconnection of animate and inanimate elements above and below ground. The result is what Instone calls a "cosmopolitics of geologic conviviality" which gives new value to native grasses in this city, over and above any notion of urban agriculture. Here then are the conceptual tools as well as political directions by which an urban natureculture can be enacted.

In shifting the focus from the human to the non-human, Instone highlights the importance of the geological and the material to the activation of life. Drawing on comparable ideas, especially the entanglement between the human and the non-human elements of the urban environment, Kaya Barry reflects on her experiences of a pedestrian bridge across the Brisbane River. Here she uses autoethnography and digital technologies to record the many ways in which the bridge interacts with and is constituted by entanglements with various physical, material, atmospheric and human elements – the flexing structure itself, the waters below, the birds, plants and many users of the bridge. A focus on the structure of the bridge highlights it as a conduit for multi-species and non-human interactions, while the experiences of moving across it allow a theorisation of the everyday as an entanglement with more than human elements in the city. These experiences are multi-sensory – tactile, sonic, visceral, individual and communal – and this attunement to the more-than-human allows a greater appreciation of these elements. The response is a deeply affective one, not only by Barry but also for Duffy, Gallagher and Waitt as they seek to understand how one Scottish activist arrives at and sustains an emotional connection to one place, which in turns forms the basis for a committed environmental politics.

Echoing Barry, Duffy, Gallagher and Waitt then seek to understand how bodies are affected and respond to sensory entanglements in everyday worlds. Instead of a walking bridge, their site of concern is the regional city of Dunbar in Scotland. Their approach is comparable to that of Instone as well as Barry in that they focus on the embodied interconnection between local environmental activists and their non-human surrounds. They pursue this embodied interaction with a focus on the emotional or affective dimensions, seeking to document what emotions do, how they assume an actual force in generating not only positions but actions on anthropogenic climate change. In terms of research methods they extend the autoethnographic and mobile methods used by Barry to include the "walk-along", where researchers walk with their participants in those places which are special; record reactions and conversations and generate detail on the embodied, visceral as well as emotional engagements with woodlands. The result is an insight into what they call the "social and psychotopic processes" that sustains one activist – Olivia – and her sense of belonging and wanting to protect and enhance local connections to this place. Through evocations of her loss and grief – as a result of a particularly significant Rowan tree being felled – came individual but also collective notions of hope. Individual and collective actions therefore emerged before the overwhelming challenge posed by the Anthropocene to engender a capacity to see and act in a sustainable way in this locality. Thus as a result of Olivia's affective entanglement with the human and non-human elements of this place, by working with secondary students to heighten their visceral knowledge and connection to their surrounds and participating in the Dunbar Woodland Group, Olivia engendered positive views and actions on living in the Anthropocene at a very local scale.

In conceptualising the ways in which humans can connect differently to nature/cultures, notions of embodiment have been fundamental. Indigenous philosophies have as integral to them a particularly complex notion of interconnection between humans, non-humans and the earth which are registered through bodies. In two papers, David Kelly and Michele Lobo explore just how these notions can be articulated, felt and mobilised to create a different politics for the urban Anthropocene. Thus anchoring his research in the Kimberley region of north western Australia, Kelly engages with Aboriginal informants as they travel 'bush', from the multicultural coastal township of Broome inland and up the coast to places more off-the-grid. The context is a highly successful set of actions by Indigenous and Green groups to challenge and ultimately stop the development of a massive onshore natural gas processing hub north of Broome. Here we have anti-capitalist political activism having a real effect on a key causative element of Anthropogenic climate change – the extraction and burning of natural gas. And in this battle, what was critical were notions of Indigenous attachment to and understanding of place, of landscapes comprising a complex interplay of non-human and more than human elements. The way these elements come together is culturally very specific in this area – though the concept of "country" is one conjoining element.

Further though, through a series of narratives with Aboriginal activists as they live in but more importantly leave Broome and seek out uninterrupted attunements with country, Kelly isolates more localised notions – of *bugarrigarra,* an everywhen moment of creativity where/when the past, present and future come together and *liyan*, an affective force on the body generated by being with country. In these narratives, what becomes clear are concepts and realities whereby Aboriginal people in this area connect to, are healed by, learn from and derive sustenance from a multispecies, material and human landscape which also spans time. This understanding reveals how humans and non-humans can and do act together to ensure mutual continuity. As Kelly concludes, the body is entangled with this temporal folding of the nature-culture divide, offering the power of country to enlarge the capacity to think and feel differently, to reconfigure nature-culture relations around plurality and co-existence. It involves slowing down, feeling place and reading country to negotiate collaborative and different entangled futures.

If Kelly details the notion of "country" Lobo looks more closely at just how this concept can be further developed through entangling everyday worlds of Indigenous peoples, ethnic minority migrants, refugees and asylum seekers in the north Australian city of Darwin. She engages with the language of race and the concept of affective ecologies to decolonise dominant apocalyptic narratives of climate change and explore co-becomings with Saltwater Country. These co-becomings intersect with contemporary land and sea management practices such as the the Caring for Country movement that arose from successful Indigenous actions to have their land rights recognised by the Australian state. The resulting framework provides employment opportunities for many Aboriginal rangers who care for Land and Sea Country that entangles multiple species of animals, fish and plants, for example. But as Lobo details, this work involves more than environmental management in an urban setting but combines scientific technologies with Indigenous knowledge systems attuned to more-than-human worlds. As with the insights presented by Kelly in another north

Australian town, such work involves slowing down, cohabitation and ethical coexistence. But this sharing of worlds moves beyond 'talk' and observation and includes participatory videos/films by participants on walk-alongs. For example, asylum seekers who arrive by boat that are then demonised and criminalised are drawn to listen to Old Man Rock, an offshore reef that is part of Larrakia creation stories. Urban land and sea Country are spaces where diverse ways of life can be articulated to reassemble and co-compose plural modes of coexistence and offer new insights into urban cosmpolitics.

So too in the mega cities of India, where an approach to the non-human, especially to animals, which involves co-existence rather than removal and demonization, provides a further alternative to living in the Anthropocene. Thus in the final paper in this collection Yamini Narayan and Sumanth Bindumadhav consider the fate of "wild life" in the contemporary Indian city. And the story is not a happy one, as massive habitat loss coupled with a hierarchy of valuing one species over another, leads to the veneration of some – such as the cow – while demonising others – such as the monkey and snake. Focusing their attention on the fate of snakes in Bangalore, the scale of the threat through cross species encounters is highlighted with close to 46 000 deaths per annum arising from snake bite. Clearly some sort of action is urgently needed. But the solution which is most often resorted to – of displacement – is not a viable or sensitive one, as the authors document the trauma and ineffective nature of relocation schemes. The rate of Indian urbanisation is not likely to slow any time soon and so the challenge of species loss, human –animal destruction and species destruction will only intensify. So, following many of the arguments in this collection, the authors present an alternative view, one which admits and values these animals as sentient, social and equivalent to humans. Further, they argue for the legitimate place of humans alongside all other more and non-human elements in the city in the name of affirming species diversity. Jennifer Wolch's idea of the Zoopolis is therefore introduced as a constructive way by which the non-human can be given a place of co-existence within the contemporary Indian city. This idea can be pursued alongside educative programs to inform people on the dangers, but also means by which they can minimise violent encounters with snakes while being sensitive to their needs and rights to their now increasingly urban habitats.

These diverse papers therefore present a number of ways by which the 'Urban Anthropocene' can be thought about but also researched differently – mobilising a range of different research approaches but also concepts that go well beyond the binary thinking that created the many problems the planet is now facing. Thus key notions such as assemblage, entanglements and country lead us to consider the urban as a place of multispecies encounter, but also as a place to slow down and engage with complex entanglements of the material, geological and embodied; of the human-non-human and more than human elements which comprise it. Only in these ways might new attitudes, standpoints and ways of being and thinking be enacted to avert the looming catastrophe presented by the urban Anthropocene.

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