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# ‘Posthuman cosmopolitanism’ for the Anthropocene in India: Urbanism and human-snake relations in the Kali Yuga

Yamini Narayanan[a,*], Sumanth Bindumadhav[b]

[a] Deakin University, Burwood Highway, Burwood, Victoria 3125, Australia
[b] Humane Society International, India, 50/A, Lane Number 3, Street Number 3, Indian Airlines Colony, Begumpet, Secunderabad 500003, India

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ABSTRACT

India’s rapid urbanisation and biodiversity decline together have critical global implications in the Anthropocene. However, the complex socio-religious dimensions of urban biodiversity are overlooked in current planning. This paper casts animals as vital components of urban societies in India to argue for species-inclusive zoöpolises as viable cities of the future. It proposes ‘posthuman cosmopolitanism’ as a planning ethic that extends pluralism to multispecies in the Anthropocene, cognisant of the socio-cultural and religious frames in which animals are enmeshed in India. These narratives have significant implications in the Kali Yuga or the apocalyptic cosmological epoch, which Hindus believe is currently underway. Akin to the Anthropocene, human action bears an exceptional significance in the events of the Kali Yuga, which is believed to be a precursor to human, ecological, and even planetary annihilation. The paper examines human-snake conflict, one of the most widespread human-animal encounters in Indian cities. Snakes play vital roles in urban ecologies and religio-cultural narratives in India. Simultaneously, religious and social perceptions of serpents contribute to a fear of snakes. Fundamental to snake preservation in the Indian urban Anthropocene is an expansion of diversity to ‘multinatural diversity’, and a reconfiguration of human-snake relations in socio-cultural frames.

## 1. Introduction

This paper argues that if successful cities are spaces that embrace and celebrate pluralism (Sandercock, 2003) – multicultural, multiracial, multi-religious and gender-diverse – then it is vital to broaden the idea of cosmopolitanism to include ‘multinatural’ diversity (Owens and Wolch, 2017) or multispecies diversity in the Anthropocene. To this end, the paper recasts nonhuman animals[1] as vital members of urban *societies*, and proposes the notion of ‘posthuman cosmopolitanism’ to plan species-inclusive cities or zoöpolises as sustainable cities of the Anthropocene. Seymour and Wolch (2009: 215) emphasise ‘zoöpolis’ as philosophy and practice of inclusive spatialism, and write, ‘if humans are to avoid despoiling the Earth, we must devise settlements in which people, animals and nature can coexist.’ These mandates point not only to the ecological dimensions of urban life, but also its social facets. ‘Posthuman cosmopolitanism’ responds to the call for ‘a comprehensive ontological vision of cities’ which includes nonhuman animals by collapsing nature/culture binaries that erect and sustain politicised differences between human and nonhuman animals.

The paper is embedded in the growing concern about the loss of biodiversity in India, due to rapid and often unplanned urbanisation (SCBD, 2012). Globally, we are at the final phase of the Strategic Plan Period to achieve the Aichi Biodiversity Targets 2011–2020, whose mission is to ensure that ‘by 2020 ecosystems are resilient…thereby securing the planet’s variety of life, and contributing to human well-being’ (SCBD, 2011). India, one of the world’s most biodiverse countries, has developed National Biodiversity Targets in response to the Aichi mission, but it lacks a focus on urban biodiversity. India must meet ‘an unprecedented…policy challenge (McKinsey Global Institute, 2010: 9), but ‘has yet to demonstrate serious planning efforts to address the impact of increased urbanisation on the environment’ (HPHP Central, 2017).

An ‘unprecedented’ challenge for urban governance and communities in the Anthropocene in India and globally would be a seismic shift in planning that recognises nonhuman animals as part of society. Urbanisation as a key feature of human development has been crucial to ‘enable’ and sustain the Anthropocene (Zalasiewicz et al., 2010), the ‘urban’ is increasingly a critical site of species erasure. Urban biodiversity impacts ecological functions and *social* dynamics of place, calling for multidimensional planning that can preserve it (Asikainen

* Corresponding author.
*E-mail addresses:* y.narayanan@deakin.edu.au (Y. Narayanan), sbindumadhav@hsi.org (S. Bindumadhav).
[1] Animals, nonhumans, and nonhuman animals are used interchangeably in this paper.

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and Jokinen, 2009). However, thinking about the multidimensional roles of animals in the ecological *and* social lives of cities remains an underexplored but vital dimension of urban social theory. This is particularly true of animals regarded as 'debased', feral or vermin (Holm, 2012: 58), 'awkward', unlovable or repulsive (Ginn et al, 2014), 'trash' (Nagy and Johnston II, 2013), or pestilential (McKiernan and Instone, 2016).

To focus the argument, the paper studies snakes, species that may be commonly regarded as 'unowned, unwanted, and commonly unseen' (Lulka, 2013: 1120), as vital members of urban society in Bangalore. The socio-cultural and religious dimensions of human conflict with snakes have been rarely given adequate attention in urban scholarship or policy. However, human-snake encounters in India are increasingly urban (Westly, 2013); as humans are progressively an urban species, so too are snakes. Snakes are 'keystone species' or 'ecological engineers', organisms that play a role in creation or maintenance of ecosystems (Whitaker and Captain, 2004), and their absence can destabilise critical ecological cycles (Reading et al, 2010). However, snakes also occupy a charged status in Hindu scriptures as variously sacred, malevolent or a curse, and this fraught standing contributes to their widespread killing out of fear (Allocco, 2013; Allocco, 2014). In India, the geologic framework of the Anthropocene is pre-dated by the Hindu meta-narrative of the Kali Yuga, which also heralds apocalyptic destruction due to human actions (Guénon, 2004). These killings progressively occur in cities, or in peri-urban borderlands due to a combination of Hindu superstitions and human unease about uninvited nonhumans in exclusive, urban 'human zones'.

## 2. Methods

The idea for this article emerged when Yamini Narayanan, a scholar-activist in urban/critical animal studies, and Sumanth Bindumadhav, a herpetologist and wildlife rehabilitator with two decades of experience, started a conversation about the melting pot of life – *all* lives – in Indian cities, and the entrenched challenges of their non-recognition in current planning. Both authors hailing from India contributed to an appreciation of the palpable diversity and layered socio-cultural, religious and ecological intersections of human and animal life in cities. That human-animal encounters in cities seemed to increasingly operate as *conflict* was a theme that emerged repeatedly in our combined work, as well as in popular, political and scholarly discourses. Simultaneously, it was also clear that animals are never simply domesticated, wild or pestilential in the Indian, particularly Hindu, imagination. All animals, including the 'unlovable', fearsome, or repulsive, are also inherently sacred in Hinduism (Krishna, 2010), and their divine status merits deeper analysis in bio-conservation scholarship in India. Their fraught status complicates the notion of conflict, which plays out in material and religio-cultural imaginaries in contradictory ways through intolerance but also tolerance to nonhuman animal presence; erasure of habitats but also extraordinary coexistence. In multispecies spaces and imaginations in India, religion (Doniger, 2009) 'foster[s] group life' (Jerolmack, 2013: 345), including between humans and nonhumans.

This paper is a modest attempt to take a 'socioecological' approach, wherein we bring together elements of urban sociology and urban ecology to locate animals in urban life as a way of disrupting 'standard views of landscape and city' (Čapek, 2010, 216). Lorimer (2012: 593) argues for a combination of social and natural sciences to inform an 'interdisciplinary biogeography for conservation in the Anthropocene'. We survey scholarly work on human-animal conflicts, and snakes and ecology in the Anthropocene, especially in India, and snakes and religion in the Kali Yuga. We use this as a backdrop for Sumanth's reflective stories of his professional experiences in Bangalore, which excavate the dichotomies of 'power/powerlessness, pest/victim and killing/nurturing' (McKiernan and Instone, 2016: 477) – as well as reverencing/demonising – that complicate human-animal relations in India. Last we draw on sociological and urban literature on cosmopolitanism to theorise 'posthuman cosmopolitanism' as a concept and practice for zoöpolises, and plan for animals as social agents in urban spaces (Čapek, 2010).

## 3. Human-animal relations and biodiversity loss in the Anthropocene in India: An urban challenge

In 2002, atmospheric chemist Paul Crutzen (2002: 23) described the current 'human-dominated, geological epoch' as the Anthropocene, an era in which *Homo sapiens* became, and are expected to 'remain a major environmental force for many millennia'. Humans are now significantly responsible for emissions and climate change, and the sixth mass extinction of species. As human species colonise landscapes through urbanisation (Narayanan, 2017), the 'urban' and the transformative processes that *urbanise* are critical features of the Anthropocene (Houston et al, 2017; Ruddick, 2015). The recognition of 'human impact' in the Anthropocene signals an expansion from planning, conservation, environmental, urban and geographical studies' traditional engagements with nature or ecology, to interrogations into animal and more-than-human geographies, politics and sociologies (Hinchliffe, 2006; Lorimer, 2012; Houston et al, 2017). The Anthropocene blurs the Nature/Culture binary, one of 'modernity's fundamental intellectual boundaries' (Moore, 2016: 3). It provokes self-reflection on the idea of *humans as a species*, as it is as a *species*, rather than race, culture or gender, that 'we have become a geological force' (Blue, 2015: 166).

However, universal ideas of the Anthropocene obscure local differentiations at the expense of over-emphasising the role of Western capitalism (Ruddick, 2015). Developing countries like India are significant sites in the Anthropocene – indeed, they are where most global urban growth is expected to occur. Some 500 million Indians are expected to live in cities by 2050, and India (together with China) will be home to about one-third of the world's total urban population (UN DESA, 2015). Even this estimate is conservative as 'urban' is defined narrowly in Indian policy, excluding peri-urban areas (State of the World Population Report, 2007). This scale of unprecedented urbanisation in India and the concurrent depletion of urban biodiversity has critical regional and global implications for food and water security, pollution, health, poverty, and social enrichment (UN-Habitat, 2016). The Secretariat of the Convention on Biological Diversity (SCBD, 2011) notes, 'This is a massive change…in the geographical locus of settlement, and there will be inevitable local and global ecological consequences.' India has some 45,000 plant and 90,000 animal species, and is 'one of the world's most mega-diverse countries' (IUCN, 2016). However, it is expected that Indiawill lose about 22% of its biodiversity, largely due to urbanisation (UNEP World Conservation Monitoring Centre, 2016).

The urban in the Anthropocene is characterised by pervasive and chaotically distributed 'giant urban galaxies' (Soja and Kanai, 2007: 58), where 'regions become cities' (Roy, 2009: 827). The 1500-km region between Mumbai-Delhi, for instance, is now urban, 'with significant impacts on habitat and biodiversity' (SCBD, 2012: 15). Two South Asian megacities, Kolkata and Dhaka, lie in the fragile and biodiverse Ganga-Brahmaputra Rivers Delta, and their combined population rose from 4.9 million to over 30 million between 1950 and 2010, 'changing their economies, landscapes, and biodiversity' (SCBD, 2012: 14). Between 2013 and 2015, some 2254 square kilometres of forestland became urban, leading to loss of ecosystem diversity, and modification of biodiversity and/or local wildlife extinctions, a trend that is expected to escalate dramatically in the next 20 years (Forest Survey of India, 2015). As Lindstrom et al (2014: 26) write, 'Habitats crucial to animal reproduction, migration, and survival are transformed, and at an increasing rate.'

Privileged anthropocentric planning has regarded land as *terra nullius*, empty of 'undesirable' cohorts of humans (Datta, 2015), but also nonhumans. As Ruddick notes (2015: 1119), 'this vision of bare life

accorded to a certain part of humanity and most of the nonhuman world (privileged pets excepted)…becomes the basis of differentiation – exploitation on which the concept of the civilized world, the capitalist urban is grounded.' When nonhuman animals 'transgress' these human-ordained physical and socio-cultural demarcations, it provokes anxieties that 'legitimize[s] the removal of the transgressor for the perceived order to be restored', leading to 'conflict' (Yeo and Neo, 2010: 682). 'Conflict' between humans and nonhumans has become one of the biggest global conservation challenges (Sinu and Nagarajan, 2015).

How are the crisis-narratives of the Anthropocene understood India? How are eco-social 'crises' of coexistence and conflict with nonhuman animals enacted, mediated, and resisted in India at the level of the local and the everyday in the highly urban pluralistic societies? In India, animals are enmeshed in urban political economies and societies as actors and stakeholders, from issues of livelihood, urban commons, climate change, to religious and cultural traditions. Animals are also enmeshed in the religion/nature/culture borderlands (Wolch, 1998). In India, narratives of control, segregation, eviction, and criminalisation of urban animals, operate alongside religio-political and cultural discourses that celebrate and even deify them.

Akin to the apocalyptic frameworks of the Anthropocene, Hindus believe in the older calamitous narrative of the Kali Yuga or '"the dark age" or "the age of discord"' (Allocco, 2014: 190), a cosmological epoch in Hindu time cycles, which is believed to be currently underway. The Kali Yuga is a period of 'obscuration and confusion' (Guénon, 2004: 50). As a frame of reference, the Kali Yuga is particularly relevant 'to social circumstances and everyday life' in India (González-Reimann, 2009). How do the time scales of the Hindu Yugas cohere with Anthropocene? The Kali Yuga is also understood as 'the time just before the coming of dissolution of the universe, when men are both weak and evil' (Dimmitt and van Buitenen, 1978: 21). Like the Anthropocene, which calls for reflection on 'appropriate human behaviour at all scales' (Crutzen, 2002: 23), the Kali Yuga narratives emphasise degenerate human behaviour as responsible for the 'difficult world we live in' (González-Reimann, 2009: 421). Analysing the Hindu Puranic scriptures, Amy Allocco notes that the moral degradation of humans is linked to environmental destruction in the Kali Yuga:

> these narrations foretell a housing shortage, a shrinking number of trees, and a diminished food supply and conjure an earth that will be whipped by harsh winds, scorched by intense heat, frozen by extreme cold, lashed by torrential rain, and parched from lack of water. (Allocco, 2014: 190)

Human and nonhuman animal lives are intricately intertwined in both the Anthropocene and the Kali Yuga. The 'edge' or the 'borderlands' (Wolch, 1998) emerge as critical sites for these human-animal entanglements, which represent 'boundaries imaginatively scripted' (Yeo and Neo, 2010: 684) by humans for different categories of nonhuman beings. Human interaction with wildlife has ranged from fencing a property to keep wild animals out to now, in the Anthropocene, fencing a habitat to keep animals in, and labelling it a protected area. Any wild animal that ventures outside a protected area is in 'conflict' with the human population around the habitat.

The solution to human-animal conflict in India thus far has been to relocate, repatriate or translocate the animal in question to a different habitat, or to hold the animal in a lifetime care facility if they cannot be released back into the 'wild'. The former has devastating effects on two ecosystems, especially the ones from which species are removed, and if they are 'keystone species' or 'ecological engineers'. The conflict is complicated by planners' lack of knowledge about the behaviour of different species. The outcomes of conflict go beyond direct, measurable losses such as loss of life, crop, and property damage, to multifaceted socio-economic and political implications (Vijayaraghan and Ganesh, 2015).

Media and public attention in India focuses on human 'conflicts' with the 'Big Five' – tigers, lions, leopards, wolves and crocodiles. Human-snake conflict, given its scale and consequences in India, and the role of serpents as keystone species in urban ecology, is largely unremarked, in large part due to the contradictory perceptions of snakes themselves. Yeo and Neo (2010: 684) argue, 'Representations of animals are always political; biased and partial, reflecting solely the interests of humans in their political debates.' Socio-cultural and religious perceptions of snakes as simultaneously sacred and malevolent, evil, unlucky and fearsome, contribute to human intolerance of snakes in urban spaces.

## 4. Sepentine-sapien relations in urban India: case for enabling coexistence

Snakes are common throughout India. Being cold-blooded, they adapt easily to challenging conditions to source food. They are as comfortable on land as they are in water and in tree canopies, vastly expanding the horizon of their 'habitable' locations to diverse urban ecologies (Whitaker and Captain, 2004) in 'multinatural cities'. Human encounters with snakes are no longer restricted to areas regarded as wild or forested. As Simonsen (2008: 147) noted of the multicultural city, increased mobilities due to urbanisation ensure that encounters with 'strangers' are common. As Bangalore, a city of nearly nine million people, has rapidly grown outwards to accommodate new construction, deforestation and habitat erasure has critically affected its metropolitan and peri-urban biodiversity. (SCBD, 2012). Bangalore has some 38 species of snakes within a 40-km range of its urban centre (SCBD, 2012). Disturbed by these new events, snakes tend to move from their localised habitats within this range, and come into greater contact with humans. Poor methods of grain storage and urban solid waste management in India attract rodents, who in turn constitute a food source for snakes (Buncombe, 2012).

The King Cobra (*Ophiophagus hannah*), Indian Rat Snake (*Ptyas mucosa*) and Spectacled Cobra (*Naja naja*) are abundant near human settlements with high densities of rats, accounting for the frequency of encounter and therefore, conflict with humans (Whitaker et al., 2010). The iconic Spectacled Cobra is particularly common in urban and suburban landscapes, and is responsible for high instances of snakebites. Between 60% and 80% of the snakes removed from residential and commercial areas are of this species (Whitaker and Martin, 2015). The Million Death Study, the most comprehensive study on snakebites in India, jointly conducted by the University of Toronto, Australian Venom Research Unit and the Registrar General of India, reports that India suffers from over one million snakebites, and about 45,900 deaths every year (Mohapatra et al, 2011). Another 100,000–150,000 people suffer from morbidity that renders them un-employable (*ibid*). Fear outweighs other attitudes towards serpents even though of the 285 breeds of snakes in India, only about 50 are venomous enough to deliver a harmful or fatal bite to humans (Whitaker and Martin, 2015). Of these, only 15 are medically important, that is, responsible for human fatalities, of which only four are widely distributed and responsible for most fatal snakebites in India (Whitaker and Martin, 2015).

Hindu religious imaginations of the snake simultaneously also contribute to fear, uncertainty, and tolerance of snakes. In Bangalore, the translocation of snakes from 'unsuitable' (residential, suburban, commercial places) to 'suitable' areas (forested, remote, empty land or brownfields), is a favoured approach among wildlife rescuers, as opposed to the older approach of killing them onsite (Whitaker et al., 2010). As Sumanth recounts, in increasingly urbanised environments, neither relocation nor killing will enable viable biodiverse cities. Human co-existence with snakes must constitute planning ethics and practice for zoöpolises in the Anthropocene – and the Kali Yuga – in India. In the sections below, we combineSumanth's reflections (italicised) with critical analysis of his work to gain insights into the complex social dimensions of human-animal engagements for posthuman cosmopolitical urbanism in the Anthropocene in India. How can these stories illuminate posthuman cosmopolitan planning practices for

multispecies-inclusive Indian zoöpolises?

## 5. Rescues, relocations – or reconciliation?

### 5.1. Religion and rescues

The role of religion is placemaking and constructing the *genius loci* or the 'spirit of place' in Indian cities has been a 'blindspot' in urban policy (Narayanan, 2015: 6). Hancock and Srinivas (2008: 620) noted that particularly in Asian cities, 'One of the persistently stubborn assumptions of so much of recent urban theory and policy seems to be that religion is external, incidental, or peripheral to the discussion of urban modernity or civic futures.' The neglect of religion as a planning concept has profound implications for social and ecological justice in cities in societies that are both highly pluralistic as well as located in informal spatialisms. Indian anthropologist Ajay Gandhi (2011) argued for the 'anthropologist's gaze' from below to replace – or at the least, complement – the 'planner's gaze from the top' for excavating the 'real' elements of place that should constitute the planning of Indian cities.

Insights on religion's relevance for human societies also have implications for nonhuman animals, who are deeply enmeshed in human urban worlds. In the Hindu worldview, animals occupy a place above humans as divine or equally, as demonic (Doniger, 2009). Depictions of the snake in the Hindu imagination are particularly complex. On Shiva, it is represented as venomous, and therefore to be controlled. On Lord Ganesha, the snake is a symbol of self-control and purity; and on the reclining Vishnu, the multi-faced cobra is divine protection. Deeply-rooted narratives of the cosmic power of snakes collide with the reality of finding snakes at uncomfortably close quarters due to the press of dense urbanisation. Amy Allocco (2014: 181) notes, 'Many of the descriptions of the punishments that befall those who mistreat *nāgas* were embedded in larger discourses lamenting the panoply of changes associated with "modern times" and, especially, the current and final of the four *yugas*, the Kali Yuga.' As Sumanth recounts, contradictory superstitions about the status of snakes (and other animals) in Hindu society are used to justify both the preservation and destruction of snakes, and have direct implications for biodiversity conservation:

*In what I have seen so far, the perception of snakes in our cities and the fate meted out to them are linked to religious beliefs, and not to concern for the snake itself. The popular belief, especially among Hindus, is that killing of snakes, especially cobras, in the Kali Yuga attracts a curse and is prohibited. Cobras are believed to be'Brahmins'and as per superstition, killing one could invoke a curse (sarpa dosha). But people find ways around this. If anyone kills a cobra, and they do, they can absolve themselves of all sins by giving the dead cobra a farewell befitting a Brahmin – the body is burnt on firewood, the ashes buried and prayers for forgiveness are made at specific temples.*

The moral tipping point as to whether the snake will be protected or annihilated is informed by how the discovery of the snake is interpreted and understood, whether by science, religion or a combination of the two. In one sense, the cultural practices, beliefs and frameworks around animal protection can be seen as conservation practices, especially from human harms in the Kali Yuga. In *Sacred Animals of India*, Nanditha Krishna (2010: xii) reminds us of 'the traditions that once gave animals protection from human inhumanity.' As urban humans encroach 'non-human 'wilderness', the Hindu home – or the temple – itself is reproduced as a form of 'domesticated wilds'. As Power argues (2009: 31), 'home is also porous in ways that exceed human design, becoming host, for example, to a diversity of nonhuman "pests"' – pests which might nonetheless also be godly in the multifaceted Hindu pantheon. As Sumanth demonstrates in the illustrative story below, ritualistic superstitious practices, particularly around fraught yet critical keystone species like snakes, are yet to be sufficiently analysed as biodiversity protection practices in the Anthropocene in India:

*Once I received a call from a temple in a developing part of town. On arrival, we learnt that the temple was expanding onto the surrounding vacant land. They had dug deep pits to lay a foundation. A spectacled cobra had fallen inside one. We procured a ladder, entered the pit and bagged the snake. On coming out of the pit, the priest requested that we circle the sanctum sanctorum of the temple 9 times, after which he wished to feed milk to the snake and worship it. We convinced the priest not to feed the snake milk, nonetheless, with the snake in the bag, I had to walk around the temple 9 times. Nine represents the nine planets which are believed to be nine gods, known as Navagraha. Then the priest performed a small worship to the snake still in the bag, put vermillion and turmeric on the bag and lit camphor and incense sticks. The priest requested that we release the snake close to the temple as he believed that God sent this snake to the temple premises to bless the expansion plans. This episode was witnessed by some 50 people including local residents and temple visitors. Interestingly, none of the residents complained about the snake being released nearby, especially as the priest had requested this and portrayed the snake as god-sent. The snake was eventually released in the same locality in the presence of the priest.*

The human-snake encounter is expected to multiply as cities expand into agricultural land and forested habitats. In the thick confusion between fear and veneration of snakes, the human priority remains self-preservation, even while contending with religious obligations to protect 'dangerous' and 'evil' species. This 'invasion' of the sanctity of Hindu spaces presents a complex moral dilemma where the snake is simultaneously pest and revered guest, fearsome and divinity. Without sufficient education in communities on snake habitation and behaviour, people tend to instinctively kill snakes at the most heightened moment of fear during an encounter, and then re-interpret narratives to justify the killing. Sumanth explains that religion and scientific training both play acute roles in determining the nature of these encounters:

*Hindus kill cobras too. Once I received a call about a snake inside the shoe stand of a house in a densely populated part of Bangalore. The family was clearly panicking. Added to this mix was the presence of 30–40 neighbours, who each had their own suggestion on the best way to deal with it. I told the residents to stay away from the snake until I arrived. I reached the location roughly 45 min later and came across what resembled a small funeral pyre complete with incense sticks, a few loose flowers, broken coconut and a small bunch of bananas, which were covered with vermillion, turmeric and uncooked rice. The snake was being burnt in the pyre. The family had hired a labourer to kill the snake. However, they still believed that the snake was a Brahmin. Hence, the only way to kill the snake but still avoid any curse, was to give the snake a ceremonial cremation, which is performed for all Brahmins. The residents believed that as they were not the ones to physically kill the snake and they performed all ritual ceremonies, they would be protected.*

In the Hindu imagination, karma is directly related to one's own action (Chaudhri, 1979). If the action can be passed, 'sold', or forced on to another individual, then cosmic retribution will be borne only by the one to actually perform the prohibited deed. Hindus can thus find ways of killing their own living gods, as Sumanth explains, by passing on the direct act to someone hired to perform the 'sinful' deed. However, the religio-moral conflicts around the place of snakes in Hindu human worlds are entangled in the real struggle for space and resources as human property development erases nonhuman and poor human habitats in Bangalore. As the next two sections respectively demonstrate, these encounters are also shaped by privileged anthropocentric factors like class, wealth, education and locality.

### 5.2. The 'jungle' creature in an era of rapid urban growth

*What causes a conflict scenario? I always try to find out and the answers usually are: a vacant plot of land being cleared of its vegetation for construction, a nearby lake/waterbody being dredged, followed by high rodent or amphibian activity, or the creation of conducive hiding places. Also, economic income group is relevant. When major construction happens, both poor humans and local species are displaced, and often get into conflict with each other over decreasing land and resources. It almost always boils down to land redevelopment of some kind, which leads to displacement for those*

*who have always lived on it…*

A sudden spike in rescue calls per day Bangalore coincided with the Information Technology boom in 2000–2002, when large-scale construction and development activity was started to accommodate thousands of human migrants (The Guardian, 2013). In the early years, Sumanth would receive an average of six calls a day, of which at least two cases would be about snakes on roads or empty land next to homes, and did not need moving. In well-established 'old' areas of the city, generations of snakes have evolved to know the daily habits of humans well enough to avoid encounters with them. In 2017, he received approximately 80 calls per day for relocating snakes, indicating an increase in human-snake encounters. The alteration flourishing ecosystems for human enjoyment and convenience may also attract species that are unwelcome (McKiernan and Instone, 2016), disregarding 'the omnipresence of a socio-spatial ordering that seeks to demarcate and distinguish boundaries between humans and animals' (Yeo and Neo, 2010: 687). As Sumanth explains, human activity around land 're-development' can be directly linked with unusual nonhuman activity in that area.

*Rescue calls are synonymous with large-scale development. Whenever a construction or developmental activity is undertaken on a patch of land, they dig deep into the ground to lay the foundation and snakes inadvertently fall into the foundation pits. Calls then come from neighbouring areas/homes and the construction site itself. Snakes that reside beneath the surface obviously have their homes destroyed and move out of that patch. They often end up in human homes as they flee to places that are outside their home range and hence relatively unknown to them in terms of spots that provide food, water and shelter.*

Snakes want to avoid any interaction with humans and only defend themselves if cornered or harmed. Whitaker and Martin (2015: 118) note, 'Snakes typically avoid humans…' and explain that 'Snakes typically bite when they are stepped upon or otherwise constrained, injured, or grabbed' (116). However, rapid development leaves snakes disoriented, leading to inevitable encounters with humans. Such encounters are unexpected for both snake and human. Butler et al (2005: 169) observe, 'Snakes tend to move in a predictable manner and require familiarity with their environment…'; however serpents that are displaced by development often find themselves in new territory that is already occupied by other snakes and by humans with whose habits the displaced snake is unfamiliar. The resulting conflict could be devastating for the snake, the humans, or both, as a disoriented and panicked snake is more likely to attack than a resident serpent in its own highly localised habitat. The curating of species as 'wild' or '*junglee*' ensures their forced removal from civilised – and privileged – human habitats. The lack of *recognition* of animals in urban sociological theory (Wolch, 2002) has been the driving foundation of city building wherein '"nature" has no significant place in the civilized city' (Holmberg, 2011: 138). Even though human-animal binaries are more blurred in Indic societies, the aspirations of modern city building in India are founded upon displacement of and violence towards the poor (Datta, 2015) but also, as Sumanth explains, towards nonhumans.

*In one such [recently redeveloped] locality, I receive 5 to 6 calls for snake rescue every month just from an area that is 8–10 km at its widest. The most calls come a single gated community consisting of some 300 homes and apartment blocks. This community is 3–4 years old and is bordered by water bodies. Previously it was a stretch of land with water bodies on either side, an excellent reptile habitat. Snakes rescued from within this community have almost all been adult snakes which means that they have been here for a long time and not recently moved in from any wooded area nearby. The community, made up of affluent residents including businessmen, expats and bureaucrats, have a very low tolerance for snakes and consider them a menace and threat to their well-being. They believe that snakes have no place in cities and should be restricted to jungles. They think that these snakes have accidentally come into their community from a forest/jungle nearby and need to be put back there – they don't want to hear that in fact the snakes have always been there, they were there first!*

In a shift away from killing snakes, relocation is increasingly the 'humane' and preferred method of wildlife rehabilitators in India. Relocation constitutes removal of the animal from one location and release in what is perceived as a good habitat. The fate of the translocated snake, or the larger impact of these activities, are rarely considered. Such rescues often have unfavourable outcomes for the animal who may be incapable of surviving in the new environs. Snakes have an impeccable memory of important burrows in their fixed home ranges which are crucial for thermoregulation of heat, ecdysis (regular skin shedding), digestion, and avoidance of predators. Suboptimal body temperature leaves them vulnerable to environmental factors and lowers their fitness (Webb et al, 2009). The translocation of snakes from habitats shifts patterns of wildlife, modifies the local abundance of snake species through changes in age and sex structure, and alters geographic distributions at the local level (Whitaker et al., 2010). Kingsbury and Attum (2009: 208) explain that moving snakes into a new territory decreases their chance of survival and affects the whole ecological community:

> Hard-released animals are often disoriented in their new surroundings because they do not have attachments to particular areas, lack a mental map of refugia or hibernacula, and have no prior knowledge of areas with high prey density or where they may be especially vulnerable to predation.

Crucially, removing a snake from its local habitat and releasing it even a short distance away dramatically escalates the chances of a human-snake encounter. Relocated snakes move uncharacteristically large distances, leading to further conflict, which may result in yet another relocation. Kingsbury and Attum (2009: 208) observe, 'The excessive movements of hard-released snakes suggest that they are searching for familiar environmental features or exploring and becoming familiar with their new surroundings…' They further write, 'Excessive and unidirectional movements in repatriated animals may represent a homing attempt towards the area from which they originated or were captured.' Sumanth describes the complications that ensue when even well-intentioned rehabilitators attempt to 'relocate' snakes:

*Some rescuers refuse to relocate snakes and seek instead to help residents live alongside snakes, many will readily catch and relocate snakes. While this does the snake no good, the residents are falsely pacified and almost happy with themselves for having not killed the snake and instead having it sent back to its "home" without realising that by having the snake relocated, they have probably condemned the snake to death. The instant gratification of seeing a snake catcher take away the snake to a forest far away is the highlight and good deed for the day for most residents.*

The growth of formal development is accompanied by an intensification of the informal in Indian cities, leading to heavily congested and typically poor urban spaces, where animals become embroiled in the volatility that can accompany human density, and scarcity of housing, employment and infrastructure. Kudva (2009: 1615) describes how exacerbated socio-spatial inequalities in Indian cities, driven by growing density, rural-to-urban migration, and deepening class differences can contribute to 'seemingly sporadic episodes of collective violence and the politics of redress.' Equally caught up, like humans, in the 'everyday politics of stealth, survival, and encroachment' (Kudva, 2009: 1615), Sumanth explains how animals too are vulnerable to mob violence in such dense urban spaces in Bangalore:

*Few years ago, we received a call at about 9 pm about a "large snake" in a densely populated locality which had eaten a puppy and had been captured by the locals and stuffed into a small cage. Along with my colleagues, I rushed to the location to realise that the snake in question was an approximately 8-foot long Indian Rock Python. This snake had swallowed the puppy whole and was therefore slow and sluggish. Locals initially gathered in small numbers, before swelling up to a crowd of a few hundred people. A few of them approached the snake and tried to prod it with sticks. One man crudely caught the snake, picking it up by its neck. Upon this poor handling,*

*the snake regurgitated its last meal whole. On seeing the puppy, the unruly crowd that had gathered went up in arms against the snake for eating "their" puppy. Some also wanted selfies taken of themselves with the python around their neck as they had so often seen in movies. It resulted in a tug of war with the helpless snake. On our arrival, we were refused access to the snake and were told we could only get to the snake upon payment of a large sum of money to the community for loss of "their" puppy. Finally, we called the police to help control the mob. When the police arrived, we managed to quickly bag the snake and whisk it away to a rehabilitation centre and eventually released it.*

### 5.3. Care and co-existence in the Anthropocene

There is no simple way to resolve this complex issue of coexistence. As with the multicultural city, 'Negotiation of difference can no longer be displaced to 'distant' places; it is taking place in our own backyard' (Simonsen, 2008: 147). However, a solution that has been known to work is an attitude shift in wildlife managers, conservationists and rescuers to promote human co-existence with snakes within the same bio-geographical areainstead of removal of snakes. Sumanth explains the critical role of basic education in understanding the 'other' and fostering an 'ethics of conviviality' (McKiernan and Instone, 2016: 475) in posthuman cosmopolitan coexistence, even if in shifting and uncertain contexts. Awareness-building, he explains, can make a demonstrated and substantial difference in translating the fundamental ethos of respect for all life in Indic thinking to tangible preservation and protection:

*One community in Bangalore sits on the banks of a lake, which was really a cesspool. The community consisted of 150–200 homes within a walled boundary, which partly bordered the lake. In 2014, the municipality decided to rejuvenate the lake, dredging it, clearing all weeds/plants, making alternations in the sewage lines to divert them away from the lake etc. For the preceding five years, there had been occasional instances of conflict. However, after rejuvenation, residents reported an average of 1 snake every 3 days. The community hired several rescuers who were called to relocate the snakes though snakes continued to be spotted frequently.*

*Then I was engaged. I did not relocate, instead they learnt to distinguish between venomous and non-venomous species, snakebite management, basic snake handling skills, equipping themselves to deal with snakes humanely and, most importantly, learnt that living alongside snakes is possible, and the only sustainable way forward. They learnt to distinguish scenarios that are dangerous from those that are not. They learnt that a snake in a home warrants the removal of the snake, provided the snake be released in the immediate vicinity and not be relocated to a distant area. The residents began to realise that a snake in the garden is not a dangerous scenario and will eventually find its way out without the need for any intervention. The community formed a core group of residents who received further training on identification and basic handling and are now completely self-reliant without depending on outside rescuers or without relocating snakes over large distances. As of mid-2017, the lake rejuvenation efforts were complete. This community has gone from little conflict, to high conflict, to now living alongside snakes with better understanding of them.*

The story of a community once antagonistic to snakes in its socio-spatial worlds, which now lives in vastly greater harmony with some of the most polarising species, illustrates Houston et al's (2017: 10) call for 'becoming-world'. It is a consciously non-speciesist stance that involves 'becoming open to the capacity of all nonhumans' (2017: 10). The community learnt to dislodge humans from the centre of their anxieties, world and placemaking narratives, towards an appreciation and indeed, a fearlessness of the potential co-existence of snake lives alongside human lives. Knowledge, fearlessness and an expanded potential for trust is crucial to allow the other to 'leave be' MacCormack (2012), and to be empathetic to the 'shared, common condition of the world as a whole' (Houston et al 2017: 10). In learning the tools of co-existence and protection, the community was in fact propelled to embrace a stewardship role in snake protection, advancing and enacting ideals of connectivity and respect for the 'multispecies entanglements necessary for all urban life' (Houston et al, 2017: 8). Sumanth describes the experience that left one of the most indelible imprints in his own journey to 'becoming-world':

*One of the most heart-warming rescue stories is of a poor old woman who refused to let us move a Spectacled Cobra from her home, a thatched roof shack with mud flooring and open spaces. There was a lot of rodent activity around her house. A neighbour had noticed a snake entering her home. Out of concern for her life and knowing that she had no way of calling a rescuer, he called me without her knowledge. Her response absolutely shook me up. She was calm, saying this was a regular occurrence which didn't bother her. She said several snakes come to her house regularly because of the rodents but she never felt threatened. All she does, she said, is to leave the door open and after a while, they find their way out. She was able to distinguish between a rat snake (non-venomous) and a cobra (venomous). She had sometimes taken a long stick and fearlessly prodded a snake out of her house. She claimed that in her native village, snakes were a very common sight and she understood that they want nothing to do with humans. For me, what was so pleasantly surprising was that everything we usually tell people in conflict, this old lady was telling us. Her neighbour who accompanied me was very amused, and said that it made him re-think his own fear of snakes.*

Sumanth narrates another story wherein simple knowledge, and its ownership, interpretation and use, empowers a community to make a concerted effort to protect snakes, and enable their flourishing. Yeo and Neo (2010: 697) emphasise accumulated knowledge and experiences achieved through dwelling' in 'enabl[ing] alternative interpretations' of human-animal relationships, the elimination of conflict, and above all, an end to human killing of species deemed 'unwanted'. Poorer communities often have a more intimate sense of community, arising from closer use of shared commons, neighbourhood bonds, and direct experience with cultural, racial and/or religious diversity. As with the old lady above, species diversity therefore often provokes less threat and outrage than in wealthier communities. Cosmopolitics seeks to 'unravel constructivist divisions that delegate what knowledge is valuable and for whom' (McKiernan and Instone, 2016: 479).

Posthuman cosmopolitics in Indian cities is thus a plea for a post-*privileged* conception of the cosmopolis which brings marginalised human communities and their vulnerabilities into focus. In their shared precarity in access and rights to Indian cities, poor humans and non-humans are intimately entangled, and often similarly excluded (Narayanan, 2017). Knowledge and understanding of 'the other' is crucial to empathetic community engagements; Sumanth describes how even children could intuitively relate to experiences of vulnerability and care, and actively mobilised resources for the rehabilitation of a trapped snake back among their own community, where he was seen to belong. Along with this local community, his account leaves us with the same sense of 'elation' at a community that had simultaneously deepened and expanded its sense of itself.

*In February 2013, I got called to rescue a non-venomous snake from a classroom in a densely populated, poor part of town. The roof of the classroom was made of interlocking tiles, resting on wooden rafters. Many tiles were broken, creating places for squirrels to nest. Presumably, the snake came looking for these nests. The snake seemed to have dislodged one of the tiles and had become trapped between the tile and the rafter. When I arrived, 50–70 locals including school children, had gathered to watch the rescue. The snake was disturbed and had constantly been wriggling to free itself, leading to a mid-body abrasion. I first asked the crowd to step away from the snake so it could calm down. To my surprise, most of them immediately stepped back to a safe distance. A few who would not were pulled back by others. I promised everyone gathered that if they cooperated, I would briefly show the snake to them after I had rescued it. Within minutes, we bagged the snake. Just before bagging, with the snake in full view, I addressed the crowd on the need to co-exist with snakes, especially non-venomous snakes, for our own benefit as they will keep the rodents under control.*

*I stressed that while this snake would need medical attention, the snake should ideally be released in the same locality as relocating this snake*

*elsewhere could kill it, and its niche in the area could be filled by a venomous snake. The crowd agreed that it should be released in the same locality. In fact, the children from the school went on to claim that the snake "belonged" to them and should be released in their school after treatment. As I was getting ready to leave, two of the children came up to me with handfuls of coins for the snake's treatment. They had gone around collecting money from everyone gathered and contributed as much as they could. This was the most heart-warming gesture I had ever experienced. The sense of ownership that the residents had towards the snake is a true mark of community-based conservation which is the biggest challenge to achieve in India today. After two weeks of veterinary care, the snake was released back in the same vicinity in full view of the residents, who were elated that the snake had recovered completely.*

## 6. Posthuman cosmopolitanism as species-diversity: planning for zoöpolises

Environmental journalist Christian Schwägerl asks (2014: 206), 'Can there be a good Anthropocene?' In a similar vein and in response to the other human-driven meta-narrative of looming apocalypse of the Kali Yuga, religious studies scholar Vasudha Narayanan asks (1997: 292), 'if human beings are powerless against such cosmic configurations.' Religion/nature studies expert Albertina Nugteren (2005) points out that the Kali Yuga is treated as the cause of all erosion of human values and consequent catastrophes, and represents 'a metaphor, a manner of speech, a common denominator for bad times.' This pessimism is a 'defeatist attitude', particularly regarding ecological issues (Nugteren, 2005: 379). Laurie Patton (2000: 60) argues in her analysis of the *Rigveda* that any Hindu text can be interpreted to justify both positive and destructive actions. Fundamentally, Narayanan argues (1997: 292), 'no Hindu text focusing on *dharma*…advises us to be passive and accept the end-of-the world scenario with a life-negating philosophy.' Indeed, whether the doomsday predictions are those of the Anthropocene or the Kali Yuga, we are asked to '[confront] the apparent inevitability of both climate change and the language of sacrifice, [and] think beyond the either/or of a people or a planet' (Ruddick, 2015: 1114).

The stage for valiant, affirmative human action in the Anthropocene and the Kali Yuga is the city, where our nonhuman brethren and their habitats have been colonised 'through urbanisation, a uniquely human claim on land' (Narayanan, 2017: 475). As one among some nine billion species however, any 'presumed exclusive human "right to the city" and the biosphere is increasingly untenable' (Houston et al, 2017: 2). Noting that there are 'multiple faces of the city', Simonsen (2008, 145) argues that there is not *the* urban way of life, but many urban ways of life, constituted by multiple 'fleshy' moving bodies through 'relations loaded with sensation and emotion' (146). The 'social world of planners' has to be increasingly cognisant of the material and social worlds of human-animal encounters (Houston et al., 2017: 2), and the live, emotional, sensory worlds of nonhuman fleshiness.

Urban policy has a critical role 'in imagining and building new kinds of ecosystems that allow for a *reconciliation* [emphasis ours] between human development and biodiversity' (SCBD, 2012: 19). However, to enable a real 'reconciliation', it is vital to be cognisant of the needs of nonhuman species by enlarging the scope for social diversity and inclusion by revising ideas about beyond-the-human, or 'posthuman cosmopolitanism' in the Anthropocene. Cosmopolitanism is a humanist notion, based on transcending constructed cultural and political 'otherness' (Calcutt et al., 2009). In its humanist forms, cosmopolitanism and the civilizational trajectory of humanism is obstructed by various forms of parochialism (Beck, 2002), especially nationalism. Beck therefore argues for 'a post-national cosmopolitan world order' (1998: 2).

We suggest however, that the ultimate parochialism is humanism itself, and call for a 'posthuman cosmopolitanism' that can radically expand cosmopolitanism to include *all life*. As Lulka writes (2013: 1119) writes, 'humanism rides roughshod over the more abstract, and thus comprehensive, concept of diversity. Intentionally or not, this effectively excludes other species, other forms of life, from consideration [which] fosters dire outcomes for many nonhumans.' Discourses on cosmopolitanism draw on '*commonality in difference* [emphasis added]' by either 'neutralising', 'downplaying' or celebrating national/cultural differences (Skovgaard-Smith and Poulfelt, 2017: 2) – or indeed, *sentience commonalities* amid *species differences* between human and nonhuman animals. In the West, animal geographers have argued that *anima urbis*, 'the breath, life, soul and spirit of the city is embodied in its animal as well as human life forms' (Wolch, 2002: 721). McKiernan and Instone (2016: 475) argue for retheorisation of cosmopolitics as 'a reconceptualisation of *our* [emphasis added] ethical and political responsibilities' towards nonhumans. Cosmopolitanism is 'a model of identity liberated from the modern grid of identity formation' (Skrbiš and Woodward, 2013: 11).

As a concept for policymaking then, any 'meaningful cosmopolitanism must involve an emancipatory political project…[that] relate(s) to everyday life and places in the city' (Yeoh, 2004: 2442). Posthuman cosmopolitanism recasts nonhuman animals as social members of cities, in species-specific modes, for planning. It advances current (humanistic) deployments of cosmopolitanism for species-inclusive zoöpolises. Cosmopolitanism is founded upon a *spatial* widening of inclusivity, care and tolerance (Popke, 2007); extended to nonhuman species-specific needs of coexistence, our framing of posthuman cosmopolitanism for planning is guided by Lulka's call to 'downplay direct relations yet posit regions as a collective comprised of humans and nonhumans' (Lulka, 2013: 1121). We suggest that formality, especially privileged anthropocentric conceptions of formality, is not an appropriate approach for recognising animals' use of urban spaces for habitation, wellbeing and mobilities, though some 'level of rough protection' needs to be formalised (Porter, 2011: 119). To this end, our key emphasis is on three aspects of planning. which, in the Anthropocene in India, must be cognisant of what makes animals 'urban', 'social'; sensitive to how they survive as marginalised beings; and invested with innovation.

Our first focus is on compromised mobilities, which is well-documented as a cause of poverty and social exclusion for humans (Uteng and Cresswell, 2008). Likewise, animal mobilities and access, subject to biopolitics of control, also indicate wellbeing, vulnerabilities and freedoms. The 'mobility of urban constituents' have varying speeds and rhythms, which are differentiated in terms of their temporalities. For instance, 'the importance of time, or, perhaps better, timing, in human-nonhuman relations' at local levels (Lulka, 2013: 1120) should one factor considered in transport planning, so that nonhuman pathways and habitats are not compromised. Wolch (2007) argues that sustainable planning should also 'determine how and where pieces of the urban fabric might be restored to ensure that animals can come and go as needed—to the mountains, the desert, or the sea.' Innovation and adaptation for survival often occur at the most degraded ecological sites (Holston and Caldeira, 2008: 18). It is crucial to examine how animals innovate, adapt, and survive displacement in fast-paced, motorised urban environments, as Indian cities aspire to be technologically-advanced Smart and global cities.

Two, we examine property not as tangible housing, space or objects, but as a set of *relations* between claimants to space (Krueckeberg, 1995). These relations are maximally significant and political at borderlands. This requires planning to be actively conscious of these sites of encounter as 'stubborn, ambiguous human-animal zones that necessitate residents' adaptations' (Yeo and Neo, 2010: 697). Urban policies (Yeo and Neo, 2010) and national laws need to recognise the importance of animal wellbeing, and that their habitats as critical to 'socially and environmentally just multispecies cities' (Houston et al, 2017: 2).

In the final analysis, we call for planning to be attentive to realities of the nature/culture/religion borderlands in urban India. Planners need to be attentive to how religion produces and reinforces the

perception and politicisation of various urban animals, and implications therein for their access to space and mobilities. The stated goal of Target 1 of the Aichi Biodiversity Targets is, 'By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably' (SCBD, 2011). With its 'cultural tradition of respect for wildlife, as well as for deliberative political processes' (SCBD, 2012: 14), India is well positioned to conceptualise and enact 'posthuman cosmopolitanism' that reconciles human societies with biodiversity.

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