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## MONSOON ASSEMBLAGES FORUM

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### Becoming the Monsoon Forest – Emergence in the Breakdown of Categories

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How do we understand more-than-human vegetal emergence in/with/under monsoonal transformation. I often like to introduce the monsoon to people by telling them that it is the change in the direction of the wind that carries the ocean to the sky, blanketing the geological spatio-temporality of the Indian subcontinent, transforming its air and everything in its temporal wake with the possibility of life. This paper thinks through the invasive *vilayati kikar* which has overwhelmed native monsoon forests and arid ecologies. Drawing from fieldwork in the Delhi region conducted during monsoon 2018, 2019 and the winter of 2018, and by thinking with literature and reports from ecology, biology, politics, anthropology and natural science—I attempt a brief situated narrative that explores the vegetal emergence of the plant, its natureculture spirits and embodiment in/with the monsoon—finally, closing this work with an argument and discussion on the monsoon and its ontological stickiness. **Key Words: Anthropocene, emergence, forests, India, monsoon.**

#### EMERGENCE AND THE *VILAYATI KIKAR*

In this paper, a temporal sense-making exercise about a particular “invasive” plant in a monsoonal landscape is presented as a narrative and structured into three parts. I first situate its colonial story and contemporary emergence. I then delve into a story about a relative species to the plant in shared ecologies, and the displacement of spirits, in the geography of disruptions. I then close the paper developing a notion of stickiness attempting an interdisciplinary reading of the relational blurriness of monsoonal becoming where plant life and monsoonal forms conspire stories. While the story of the plant dominates the narrative in the work, it is ultimately the monsoon that complicates, blurs and offers its form as a conceptual atmosphere within which the story can be explored. So, to that end, I offer the reader, a way of hopefully thinking with the plant and its complicated story as it is transformed by the monsoon, and its conceptual assemblages. I am indebted to the

scholarship of Amita Baviskar, Natasha Myers, Anna Lowenhaupt Tsing, Eben Kirsky, Pradip Krishen, Eduardo Kohn among others, whose work enables this story to be told the way it is told. I have also benefited from the accessible and scientific scholarship published by Shirke, Pathre and Sane among others, from the National Center for Biological Research in Lucknow that has enabled key political maneuvers in this text.

The term *Vilayati* in Hindi is said to have come from the English word “blighty.” The use of the word “blighty” in the subcontinent is argued to have transformed locally as “*vilayati*,” indicating something foreign, the English, the “whitey” and the outsider. In Delhi, the term *vilayati* is prefixed to a plant that is scientifically called *Prosopis juliflora* and locally called the *vilayati kikar*. Driving around town and walking in some of the many city forests in Delhi, it is hard to miss this type of *kikar*. It was introduced by the British in the 1900s in north India and has extensively found home in the ecologies of India’s many so-called arid and semi-arid landscapes. The impact it has had on the biome, groundwater and on local communities through the vastness of its expanse, has led to the categorization of the plant as an invasive species. Internationally it is simply called the mesquite but I use the term *vilayati kikar* here as it is what people in Delhi call it and I am interested in the political implications of its use. In this paper, the use of the word *kikar* is always in reference to the *vilayati kikar*.

Native to South America, this small shrub tree species was internationally used in colonial processes as a wood-fuel and fodder plant highly adaptable to arid grounds and hence used in the project of afforestation (Pasiecznik et al. 2001). The toxic alkaloids in its root system and its thorny branches deter the growth of other plants in its surroundings. In Delhi, where my interest toward the plant began, it has become the hegemonic cover over much of the Delhi ridge. Hinting at a certain kind of emergence in the name itself, the Invasive Species Compendium (CABI) cites Perry (1998) in the explanation of what *Prosopis juliflora* means “The origin of *Prosopis* given by Perry (1998) was ‘towards abundance,’ from the Greek word ‘*pros*,’ meaning ‘towards,’ and ‘*Opis*,’ after the wife of Saturn, the Greek goddess of abundance and agriculture. The name *juliflora* comes from *julus*, meaning ‘whip-like,’ referring to the long inflorescences and flora being the flower” (CABI Invasive Species Compendium, 2018). Reddy (1978) observes that in a letter from Lt. Col. RH Bedome (Conservator of Forests, Madras) to the Secretary of the Revenue Department of Madras in 1876, Bedome speaks of the use of the seeds of *Prosopis juliflora* to be brought from Jamaica to be used in “fuel plantations” of “dry districts” in India (CABI Invasive Species Compendium, 2018). Emergence here linked as a speculative praxis of colonial anthropotechnics takes us to the plantationocene (Haraway 2015; Tsing 2016): an imaginary of extractivism through the moving functional apparatus of biological worlds. I am sympathetic to Kirksey’s (2015) understanding of emergence here, as something novel that unfolds, through disturbance where transformation holds different forms and kinds of relational potential. He thinks of it as a possible assemblage of collective hope, even when the premise of the story is a form of anthropogenic damage. In doing so, he advances the figuration of trouble inherited from scholars such as Donna Haraway who highlight how the praxis of living-with has always been the predicament of making do with transformed conditions and matters. Emergence is not just a bio-political site but often also a relational and embodied material space that is inherently sticky. This approach is interesting for monsoonal thought as the monsoon is never a static and stable recurrence but a dynamic and speculative force. Monsoons are life giving. They’re also destructive. Monsoonal form and experience is a continuous process of co-production. The monsoon coauthors multispecies

assemblages through its recurring relationship with landscape, that draws out the politics of life and process in relationship with it, always. It holds the capacity to coauthor emergence even when the intent of cultivation often seeks boundedness. The winds and the monsoon coauthor emergent collaborations through the politics of the multispecies assemblage: from seeds, enzymes, soil, air, and so on.

In her work titled “The First Garden of the Republic,” Baviskar (2016) writes about the history of the presidential gardens on Raisina Hill in the Delhi Ridge. On a barren ridge laid dreams of a new colonial capital. For the two decades from 1917, she notes how the colonial caretakers of that land tried and failed to introduce several species in the greening of the Ridge. They desired the production of a habitat that was representative of power and a settler colonial future. The Ridge’s arid and rocky condition did not make that easy. Furthermore, Delhi’s extreme weather swings made it a challenging task for them to curate a botanical plan that would survive in its climate. Annual extremes of 47.2°C and minimums of –0.6°C (IMD website) meant that plants had to survive through a wide range of temperature change through the year. The British failed several attempts at introducing and sustaining plants from the Himalayas and beyond, to green the Ridge. To seek to green the Ridge, is to seek a certain kind of emergent process. The history of colonial botany, private property, agricultural enforcement and biopolitical categorization teaches us that it has always been aligned with the desire for extraction and profit. Now, Baviskar (2016) notes, “Though some native trees, such as *ronjh*, *dhak* and *siris* managed to survive, it was the Central American Mesquite (*Prosopis juliflora* or *vilayati kikar*) that proved to be the most tenacious” (14). The imperial gardener, William Mostoe, she notes had a real passion for this exotic functional tree. He would occasionally seed the plant himself, in tracts (*ibid*). This is where one form of vegetal emergence begins to operate. Through a planetary colonial choreography between the Caribbean, the Kew Gardens and Raisina Hill, we begin to see the role of the colonial laboratory in inscribing vegetal fantasies of place. The perceived aridity of the Ridge and the desire for a colonial forestry enables that story. The condition of aridity becomes the site of colonial testing where speculative alliances between place, species and extraction are mobilized. For imperial gardening, the hill after all through the guidance of Lutyens was engineered to meet a phantasy of opulence to perform colonial remembrance and settler power.

Westward of Delhi, in Rajasthan, the British encouraged the South American import to be planted extensively, by the then king of Jodhpur—after successful trials in Gujarat. It was said that the king of Jodhpur himself participated in aerial seed drops, to plant *Prosopis juliflora* across the desert (Burrows 2012). It was given the designation of a royal plant. Rumor has it that the king believed the wood from the species could be used in the production of aircraft wheels (Burrows 2012). Maharaja Umaidh Singh was a passionate flyer and the founder of the Jodhpur Flying Club. During the Battle of Britain of World War II, he commanded the Jodhpur base (Parmar 2016). Other explanations indicate a much more humble possibility of its use: firewood. This attempt of an anthropogenic emergence through the *vilayati kikar* is clearly visible in the airborne distribution of *juliflora* seeds. Reports from the Center for Science and Environment (CSE) indicate that the Government of India continued the practice of aerial seed drops (from helicopters) of the *vilayati kikar* right after independence in 1947 over many of India’s north western arid landscapes, including the Banni grasslands (Down to Earth 2019).

In Gujarat, satellite analysis by scientists (Pasha et al. 2014, 1481) indicate that 42.9% of the Great Rann of Kutch is now under the cover of *vilayati kikar*. In appreciating the aggressive

speed and volume in which it spreads, Pasha et al. (1481) observe that “the largest patch of *Prosopis* cover increased from 144 km<sup>2</sup> in 1977 to 430 km<sup>2</sup> in 2011.” The Rann of Kutch is one of the largest salt marshes in the world. From the Rann, to the grasslands of Banni, the Aravalli range and its edge in Delhi—the *vilayati kikar* inspires a material understanding of emergence through its pollinated presence. This choreography of planting, movement and emergence interconnects practice, material and time. The categorization of a vegetal “invasion,” i.e., becoming *vilayati* turns out as a process of becoming in the turn of the actual possibility of what is, what was and what can be. In this spirit, there were quite a few people in Delhi who metaphorically told me the same thing—that the project of weeding out the *vilayati kikar* was akin to the project of throwing the white colonizer out. “I wish we could build walls around them and force them to stay there” said one of them (See Figure 1). The idea of a material boundary to control the spread of *juliflora* is a fascinating one as the politics that it seeks to construct is in-fact not just of the movement of *juliflora* but of the movement of animals that consume the pods of the plant and assist in its distribution. While the wind carries the pollen of the *kikar*, it only reproduces through seeds membrained within the hard shelled pods. Consumed by donkeys and other animals, the seeds find their way to earths through the waters and digestive juices of mammalian bodies.



FIGURE 1 People say “it’s everywhere” and it “grows back.” An image from Sanjay Van (Sanjay forest) in the southern part of the Delhi Ridge. Photograph taken by author.

One version of a resistance-imaginary toward this emergence can be found in the naming of the *vilayati kikar* itself. The *vilayati* implies an unknown, an uncertainty folded into the very meaning of the form. While stories of resistance and living-with can be found across the spaces and nature-cultures where the *kikar* is, I've been interested in thinking through the *kikar* from Delhi where its contestations have been cataloged for quite some time. The conservationist CR Babu has for decades been working on the reduction of the *vilayati kikar*. Having set up a campaign to weed out the plant from the city, he was one to note that the *kikar* skyline had negatively influenced the local migration pattern of birds and had allegedly sucked out groundwater from large tracts of the Ridge (Bhutia and Singh 2018). Scientists are now experimenting with other competing indigeous vines and creepers to see if they can be grown to curb the *kikar* of its sunlight and gradually bring down their numbers (Thakur 2018). The aspiration of the program is to assist an architecture of photosynthesis to creep over and entangle over the thicket in generating a shade, thus hoping for the *kikar* to die out due to a form of photosynthetic reduction. These contestations in conservation signify an anthropo-technics that is webbed as a political mechanism that is articulated through the vegetal. In Delhi, it is against the rules to cut trees planted by the state. At a time when afforestation and tree cutting have also become deeply political subjects in Delhi which is backgrounded by desertification and increasing air toxicity, the *kikar* is also a deep managerial interlocutor in a conversation between governmentalities past and ongoing present. As what also keeps the *kikar* intact in the biome is an ongoing political discourse of legal protection for trees and at the same time, the license to cut them which is almost exclusively held by the state, its agencies and aligned private interests.

The argument conservationists and ecologists have been making is one of the preservation of native biodiversity. This anxiety of disappearance, politically formulated through categories, such as the arid monsoon forest, as Pradip Krishen identifies is relevant to the cause of an ecological imaginary that is understood as an ecology entangled with the monsoon. As Krishen (2006) identifies, Delhi's city forests in the Ridge are arid monsoon forest ecologies. The Master Plan Document of 2011 accounts the ridge as part of the green zone measuring to 8422 hectares of the 44,777 hectares of the total plan (Mann and Sehrawat 2009). Krishen argues that the monsoon forest is a complex metabolic being that lives in harmony with the monsoon. He writes "Unlike a natural forest, no nutrient rich litter of dead leaves revitalizes the soil each season. The earth is either covered or packed so tight that nothing penetrates beyond the first few centimetres" (Krishen 2006, 16). He argues that a monsoon forest unlike a rainforest is much drier and is currently experiencing endangerment in northern India. He notes that unlike several evergreen trees (like the *vilayati kikar*), the trees of the arid monsoon forests have leaf systems that are esthetically in-tune with the monsoon—they shed, die, absorb and flourish through the changes of the year. They visually seem to shed and die, only to be replenished and flourished back into life through the monsoon. Metaphorically speaking, they breathe with the monsoon.

The *vilayati kikar* therefore interrupts continuity of a very particular monsoon forest imaginary by becoming the thicket. In-fact, *Prosopis juliflora* was introduced in the Ridge as an "evergreen" species, i.e., simply put, something that is visibly green throughout the year. In *Tughlakabad*, *Sanjay Van* and many other parts of the publicly accessible Ridge, where I spent time during fieldwork, the *kikar* reigns the skyline (See Figure 2). Walking in the Ridge, it is simply unavoidably the representative assemblage entangled with monsoonal skies. The thicket



FIGURE 2 Tughlaqabad fort where the Delhi sultanate was founded in the 1320s, with vilayati kikar skyline edging the horizon, as of July 2018. Photograph by author.

of dark green meshes with the dark skies of the monsoon. To think with Kirksey’s (2015, 1) work on Emergent Ecologies—“When a forest is clear-cut by loggers or destroyed by a volcanic eruption, emergent plants are the first to sprout. Nascent associations are able to exploit faults and fissures within established assemblages. They contain the promise of supplanting deeply rooted structures.” The category of the existing monsoon forest is what is arguably supplanted by this emergent assemblage. What I want to pose however is the possibility of a monsoonal assemblage not just to be a site of displacement but of methodological reconceptualization. In thinking with the stories Kirsky writes about, I observe an openness to the dynamics of liveliness. Registers of separation between sky, thicket, geology and the time of the monsoon are broken down as showers allow geologies to hold waters to allow thickets to flourish. The assemblage unfurls.

What I am getting at in some sense is the possibility that the *kikar* holds a monsoon forest story in/of emergence that is not cataloged by the conventional way biodiversity is archived, stored and articulated. I want to propose therefore that while the *kikar* opens up ethical questions of what constitutes the diversity of the biome, I also seek a political alliance in acknowledging that more-than-human emergence is of more-than-human politics, and in this case constitutes a monsoonal alliance. What is certain to me however is that the *kikar* does not exist in detachment with the monsoon but is in-fact deeply effected by, with it, becoming-with (Haraway 2008) it—something that I will explore further in the third section of this paper.

In-fact recent studies of the impact of the *kikar* on native ecosystems in Delhi argue that the species “was much more positive than is currently perceived” (Naudiyal, Schmerbeck, and Gärtner 2017, 41). Naudiyal, Schmerbeck, and Gärtner (2017) argue that species that have prospered under the shade of the *kikar* and anthropogenic influences have been ignored in past studies. Their work speaks to research elsewhere that argues that invasive species can often nurse and cohabit with native flora, implying a certain kind of “nurse effect” (40). They observe that the seeds of the *kikar* are often not successful in their own shade but require transport in the

process of finding suitable ground, which is provided by animals and insects. Most importantly, they stress that anthropogenic influences had the most powerful impact on “ground vegetation composition” (39). The forest or what the forest becomes even in its temporal removal is entangled with anthropogenic cause and formations. So as one version of the monsoon forest disappears, another form through its metaphor, reappears in what seems like a simultaneous act of displacement, flourishing, collaboration (Tsing 2015) and living. Is it still then the monsoon forest? What monsoonal agencies/forms does one write with?

As Kirksey (2015) provokes “The key question of emergent ecologies—how should we love?—often comes with preordained answers in line with dominant political projects and economic interests. Political ideas about belonging offer deceptively simple plans of action: kill the aliens, love the natives.” (218) As Kirsky explains—the very same colonial forces that push capitalist interests use the very same analytical method of difference in furthering their agendas. There is a need to understand alliances more deeply. In the case of the *kikar*, the monsoon as I will argue in the upcoming part of this paper is in alliance with the form of emergence that is recognized as the *vilayati*. In becoming the monsoon forest therefore, displacements can be read in a variety of ways. What I seek to stress in this paper is that like the change in the air of the monsoon, monsoonal embodiments are simultaneous. What is prescribed as native and/or invasive share embodied capacities with monsoon airs. Just as the monsoon forest clocks its life pattern with the annual monsoon—so does other more-than-human life. Therefore, a monsoonal geography, while a political space for human attachments and contestations is also a space for more-than-human emergence through monsoonal embodiments. In the next section, I discuss the *vilayati kikar* alongside an indigenous variant of *Prosopis* called *Prosopis cineraria* which holds deep meaning for many communities who have historically lived with it, thereby adding another layer of narrative in developing a monsoonal argument.

## THE SPECULATIVE DISPLACEMENT OF SPIRITS

In the Aravalli range, two kinds of *Prosopis* intersect, scheming a conversation between Delhi and Jodhpur: *Prosopis cineraria* and *Prosopis juliflora*. The *cineraria* variant is called *Khejri* and is also the state tree of Rajasthan. *Juliflora*, because of its invasive influence is popularly called *Baavlio* in Marwari, i.e., the mad one (Rahman 2014). It is got similar names in other parts of the region and the country. These two siblings of *Prosopis* signal different meanings and possibilities based on the stories entwined with them (Sharma and Dakshini 1991). By bringing some of these meanings to the fore, I think with their stories to gently suggest the possibility of the displacement of spirits. Entangled with the material temporalities of the changing monsoon, the stories expose a particular conversation on trouble: the simultaneities of it, its expanse and sticky entanglements.

Imagine therefore the dusts and aerosols picked up in the Great *Rann of Kutch* and the range westwards of Delhi in an *Andhi* (a local term for pre-monsoon dust storms) of the summer before the rain. Imagine these pre-monsoon dust storms moving east, carrying and entangling meaning with the trees it speaks to, as it moves. The *vilayati kikar* and the *khejri* speak to different rhythms and cultural ideas of the monsoon. The leaves of *cineraria*, also called as *Shami* in parts of India, is used to denote a time of prosperity. The resilience of *Shami* through extremely dry periods feeds cattle and other animals. It keeps animals fed till the rains arrive

and far after they depart. While it shares the characteristic of being evergreen with *vilayati kikar*, it seems to occupy a different emotional and political register. One can argue that this is because of the ecologies that have been historically formed with the *Shami*. These are affective atmospheres. Furthermore, the medicinal use of *Shami* is archived in Ayurveda and is used in a variety of medicines (Garg and Mittal 2013). During the period of *Vijaya Dashami*, also known as *Dusshera*, signifying the victory of the tenth day of the Ashvin calendar entangled with different mythical stories discussing the end of evil—the leaves of *Shami* (*cineraria*) are used to signify wealth and resilience. The period of *Dusshera* is also a post-monsoon time of harvest for some crops. The wood of *khejri* trees have also historically been used by some communities for sacred yagnas (vedic rituals centered around a burning fire). *Shami* leaves keep peace when wet airs are yet to come and also when they have far gone. The leaves of *Prosopis cineraria* signal hope in a post-monsoon time. The environmental history of these leaves hint at affective ecologies that inscribe different nature-culture trajectories.

In 1730, Maharaja Abhai Singh of Marwar commissioned the cutting of a *Khejri* forest for the construction of a palace. The Bishnoi community who saw the trees as sacred living beings, dissented to the proposal. 363 Bishnoi people laid down their lives protecting those trees from the Maharaja's soldiers. For each tree, a human life. In mythological Hindu storytelling, the *Khejri* is underneath what the deity of fire, Agni hides (Hans 2016). It is interwoven into parts of the Mahabharata and Ramayana where the tree participates as an ally with positive human forces. These entanglements represent a difference in the situated bonds, these two forms of *Prosopis* have with particular communities. Recent reports indicate that the *Khejri* is in decline in Rajasthan due to climate change (Krishnan and Jindal 2015). A reduced water table in an already arid landscape and rapidly spreading fungal strains have impacted the *Khejri*. For an indigenous tree that survives even through the periodic sand burials of the arid west, climate change has even impacted its flowering, fruiting and possibility of survival (ibid). Yet, the spirit of the *Khejri* persists in human imaginaries, even as it finds itself in trouble. As Kohn (2013) purposefully claims “Spirits are real (see also Chakrabarty 2007; de la Cadena 2010; Singh 2012). How we treat this reality is as important as recognizing it as such; otherwise we risk taking spirits to be a kind of real—the kind that is socially or culturally constructed—that is ‘all too human’ and all too familiar” (216). The gradual dying of *Khejri* forests suggests the displacement of spirits. Narratives of the *Khejri* are also always narratives of the monsoon. The monsoon nurtures the imaginary of its life-giving capacities in these landscapes, as sustenance that is sky-given. Trees such as the *Khejri* are interlocutors, holders and living archives of that life-giving capacity beyond monsoonal temporalities. They're examples of the deep association of maintaining monsoonal time through the rest of the year. The airs of the monsoon gather the force of material and conceptual spirits in keeping things alive, and manipulating life-systems.

Therefore, it can be argued that the emergence of the *vilayati kikar* indicates the production of a different experience of time. The displacement is affectively ecological but it is also a sense that the condition of time has changed. The *Khejri* as the carrier of mythological stories and alliances is in semiotic disturbance with the *vilayati kikar*. Anthropogenic formations in this context are affectively *vilayati*, asking for spirit worlds to retreat in the arrangement of new mad ones (drawing from the word, *Baavlio*). Like the wind that seems to come from other places, to situated points of experience, the *vilayati* affectively carries a force of rearranging context through its emergence. As one will see, the transforming monsoon collaborates in that



re-arrangement. Therefore, the *vilayati kikar* at the other end of the *Prosopis* family attracts a different kind of natureculture attention. Having “competed” with the *Khejri* in some places, it inspires a sense of disturbance.

The *vilayati* is also a technology of discourse for the post-colonial state. The Madras High Court in an ongoing battle in 2017 to weed *juliflora* out of public lands, stated that there was “no scientific basis” for its indiscriminate removal. The petitioner of this case highlighted its uses as “fuel, fodder, tree shade, soil stabilization, wind breaker and construction material in villages” (TNN 2017). This particular case in the Madras High Court was upgraded to a larger bench which in summer 2017 ordered for the phased removal of *juliflora* by the administration (TNN 2018b). In reference to the Madras High Court ruling, the forest department in Rajasthan set out to consider the National Rural Employment Guarantee Act (NREGA) program to clear *juliflora*, the very same species they had facilitated the planting of in earlier times ([Government of Rajasthan Forest Department](#)). Entwined with ecology, economics and industry, the species is now nothing short of an active political-economic participant in everyday human and more-than-human life in several regions. Its pods are processed in the production of fodder and its wood is burnt to make charcoal. The *vilayati kikar* attunes to human activity in what Tsing (2015) calls “salvage accumulation” (63). It is not a tree that is commercially harvested but an invasive species that communities and the state are making due with by transforming it to a commodity. This process facilitated by the state attempts accumulation through means of an industry based on a commodity that cannot be controlled. While historically, *juliflora* was seeded to tame the land as an act of colonial practice, it nurtures its own assemblage by collaboration and flourishing with the monsoon.

Tsing (2015, 160) calls for paying attention to the kind of disturbance that reforms assemblages. Collaboration and flourishing, as Tsing (2017a) argues are the consequences of more-than-human negotiations. Assemblages entwined and formed with and within the condition in/ of the airs of the monsoon hold political form. The two *kikars* differ and offer speculative possibilities, but they’re both clocked in with processes of monsoonal becoming. Changes in the monsoon and a transformation of climate, thanks to anthropogenic processes locally and otherwise shift ecologies. The displacement of spirits therefore is not confined to the story of an inter-species relationship between two plants. It is a form of monsoonal withering, where multiple assemblages are co-constituting breakdowns. To refer to the Bishnoi who would argue that the life of trees supersedes in value to the life of humans; to cut the forest therefore is not just a confrontation, it is severing the life of multiple assemblages: past, present and its possible futures. It is a literal change in the atmosphere and, the many airs of the monsoons that will pass by and simmer through those forests.

So, by placing the life of the two *kikars* in conversation, I argue that the atmospheres and stories of atmospheres inherited with the two *kikars* differ and offer speculative possibilities too. They have monsoonal relations. The changing monsoon interlinks the common air, in which both spirits and speculations fluctuate and exist. From the sacred figures of the post-monsoon *Khejri* to the *vilayati kikar* that persists in conversations about the disappearing forest, the two *Prosopis* of these lands expose us to the complexity of inheritance and how different beings generate affective and political atmosphere. These lived relationships are not just symbols but bonds that generate conceptual meaning. As Kohn (2013) invites us to think about a metaphysics of conversation, between the concepts of forests and the concepts of humans—I argue here that as *Khejri* stories travel to places

such as Delhi where *Shami* rituals are practiced even with the absence of the *Khejri* in several landscapes—the *vilayati kikar* in contrast offers stories of uncertainty. The *kikar* is not just an uncertain actor in the landscape but is also an agent of generating an air of anxiety. The change in monsoonal currents solicits anxiety as well, as a change in the monsoon is a change to what constitutes life. The *Khejri* is a sample from the monsoon forest. In becoming monsoonal, the *vilayati kikar* amplifies an affective disturbance—form meeting form, within a changing monsoon of uncertainty. I want to continue this sense of unease with comparison onto the next section of this paper where I discuss alternative ways of perhaps thinking about the *kikar* and its entanglement with the monsoon.

### ENZYMATIC RELATIONS AND STICKINESS

Through the brief observations offered in this section, I intend on showing how processes from the study of monsoonal adaptation of the *kikar* might shed light on what is considered invasive becomes monsoonal, in ontological stickiness. Enzymes, through their microbial work assist in the development of a methodology of description by releasing some of the monsoon-life temporalities open for analysis. For this part, I think conceptually with Natasha Myers's (2015) work on excitable matter to help me approach literatures of monsoonal adaptation of the *vilayati kikar* and speculatively draw out temporalities of meaning deeply linked with a theory of monsoonal becoming. Myers's work enables me to think about crucial connections between the enzymatic and the powerful force of plant atmospheres, including that of the monsoon in this instance. While her work develops excitability through the study of what protein modelers do, and how mechanistic processes participate in the performance and understanding of deeper animacies, it gives visibility to methodological cosmologies that are inevitably bound up in life-world description and performance. Considering I am interested in the *vilayati kikar*'s affective-and-real emergence, which trigger different ways of knowing in making sense of its presence, I am interested to ask: how else could one delve into the speculative micro-cosmologies of monsoonal becoming? In solidarity with Myer's thesis, I find that empirical connections in the natural sciences and other technoscientific sense-making exercises don't need to stay within the project of contained description but can and do have implications in how emergence is understood, analyzed and articulated. They meet monsoonal spirits. The meet politics. They produce worlds.

Meanwhile, in developing her work on plants, critiquing the normative and simplistic representations of photosynthesis, Myers (2016, 1) observes "Textbook diagrams familiar from high-school biology class are simplistic renderings of that utterly magical, totally cosmic alchemical process that tethers earthly plant life in reverent, rhythmic attention to the earth's solar source." Myers continues, "The photosynthetic ones—those green beings we have come to know as cyanobacteria, algae, and plants—are sun worshippers and worldly conjurers" (ibid). Her work helps me develop an observational temporality in the space between plant sentience and air; that monsoonal matter in which colors gray and dampened do something to description where the monsoon is clearly so much more-than-rain in figuring (Haraway 2008) emergence. The *kikar* as an interlocutor between colonial afforestation and the modern state enterprise brings the monsoon in conversation in forging paths beyond the confines of the forest boundary. The implication of a photosynthetic methodology, following Myers, is huge as the

living forest is attached with the monsoon, and its photosynthetic form is relationally bound up with monsoon air. The monsoon not taken as an externalized weather system speaks to/with the forest (and what is left of it). The monsoon forest and the conceptualization of monsoon forests seeks to push back against presumptions of the possibility of detachment from the monsoon, even within an experience of its transformation. One of the ways through which a monsoonal attachment can be articulated is through the life-dynamics of a protein enzyme called Rubisco. Ribulose biphosphate carboxylase/oxygenase otherwise known simply as Rubisco is the most abundant protein on the planet and is an enzyme found in plants that facilitates the photosynthesis of carbon dioxide with chloroplast (Karcher 1995; Sciencedirect 2018). As the RCSB Protein Data Bank describes it, this enzyme “forms the bridge between life and the lifeless, creating organic carbon from the inorganic carbon dioxide in the air” (Godsell 2000, 2) Rubisco situates the process of carbon fixation in leaves. It is a protein that makes what Myers refers to as the “photosynthetic ones”: “Photosynthesis circumscribes a complex suite of electrochemical processes that spark energy gradients across densely folded membranes inside the symbiotic chloroplast of green beings” (Myers 2016, 3). Natural scientists interested in studying the way leaves adapt in different airs and conditions are interested in factors such as the amount of photosynthetic energy that is available to a plant which is also called Photosynthetic Photon Flux Density or PPDF. They’re also interested in understanding aspects they term as Vapor Pressure Deficit or VPD which is the difference between the amount of moisture in the air and the amount of moisture the air can hold, indicative of that potential zone of saturated collapse.

Shirke, Pathre, and Sane (2018) from the National Botanical Institute, in their study of the adaptive nature of the leaves of the *vilayati kikar* note the following: that the first cycle of leaves through spring “exhibit maximum carbon fixation under moderate temperatures and a wide range of PPDF. However these leaves are sensitive to high leaf-to-air-vapor pressure deficit (VPD) occurring at high temperatures in summer resulting in senescence” (468). Senescence is the aging of a leaf and its gradual inability to hold energy in its cells. In the monsoon, the second cycle of leaves “showed maximum carbon fixation at high irradiance and temperature with low VPD, it is sensitive to low temperatures causing senescence in winter” (ibid) write the authors. In comparison with the behavior of the *vilayati kikar* in other parts of the world, the authors note that the leaves of this *kikar* have well adapted with north India and its climate. The monsoon lets the leaves of the *kikar* relax. It gives it the ability to actually remain esthetically evergreen, reducing the brackets of time between leaf cycles. It attunes with monsoonal breath—where the leaves of the shrub, attach/attune with/to light and moisture during monsoonal times. This photosynthetic breathing that the *vilayati kikar* performs is a form of breath that is in-sync with the amount of moisture in the air and the light that cuts through. This is locational, temporal, enzymatic work.

Shirke and Pathre (2004) in their study of Rubisco in the *vilayati kikar* argue that the plant “did not show significant changes even under extreme conditions of temperature” in tropical conditions (137). They suggest that it has found a way to regulate and govern its protein metabolism through the seasons. Through the summer and the monsoon, the *kikar* attunes its enzymatic relationship with the air as a metabolism that draws from the air to stay alive. The monsoon enlivens its formation, for its sustained presence throughout the year. These nuances offer complexity to the reading of the *vilayati kikar* as a drought-tolerant species (Vanthof and Kelly 2017) and an evergreen species (Shirke 2001). Shirke (2001) argues that the “high degree of reversible photoinhibition” seen in the leaves of this *kikar* at all their stress stages between

seasons “represents a dynamic regulatory process protecting them from major photodamage” (310). Photoinhibition is the reduction of photosynthetic activity caused by light (Baker 1996) helping the *kikar*’s leaves from photodamage (being damaged by high exposure to the sun). Shirke and Pathre (2004) also observe that the reason the plant seems evergreen is because “unlike typical deciduous plants the shedding of leaves is also accompanied by the emergence of new leaves, thus the period of senescence and growth of new leaves is very short and the plants appear evergreen” (131–132). This means that it figures the space between perceived death and life in very short cycles—generating a sticky temporality. I imagine this perceived time of regeneration as an enzymatic and sticky process for the *kikar*. Stickiness here is a way of describing inherently attached materials and processes, inhabiting monsoonal presence. Its cuts through, or rather, stickily across assemblages, articulates stories of monsoonal becoming. It is a conditional way of gathering the story. The monsoon organizes.

Stickiness here is a conceptual offering to the way the monsoon gathers and/or disorients. Following plant stories into enzymatic stickiness, earth stickiness and atmospheric stickiness in the magical, necessary and often disorienting effects of monsoonal form, I want to use this vocabulary of stickiness to refuse weather exceptionalism which pretends phenomenological formation without intimate attachments with landscape. I think stickiness allows for different forms of flourishing and trouble (words I am indebted to inherit from readings of Tsing and Haraway), to mediate a form of readership into a monsoon story. More importantly, it casts possibility into the fact that plant sentience effects the wind, just as the wind effects plant worlds. That interlocutor in this instance happened to be the *vilayati kikar*, despite its troubled positioning in a socio-economic-political landscape offering all sorts of weird and interesting openings to its atmospheric claims. Unlike the spiderweb in Corsín Jiménez’s (2018) writing on sticky entanglements which is a mode of capture—stickiness here is not understood that way. Stickiness here refers to the inseparable bonds that are predetermined by the air and the forms of life that exist within it. Recognizing sticky temporalities helps one register monsoon beings as formations that are immensely complex and driven through monsoonal relationships. Stickiness as a mode of description centers monsoonal presence. This is particularly important in this context because the arid monsoon forest is a breather of monsoonal life. Temporalities of esthetic regeneration in plants that facilitate descriptions of the so called colonial “evergreen” are the results of the intimate photosynthetic dynamics and claims made by the plant(s). In reading Pathre et al.’s (2004) work, I am fascinated by moments such as that where they express that: the second flush of leaves produced annually by the *vilayati kikar* during the monsoon display a higher rate of photosynthesis than those of that from spring, summer and winter. The monsoon flushes a system of emergence that is metabolically attuning to it and the times of the monsoon are clocked in, stuck to, as forms become formations. As people in monsoonal landscapes keenly recognize, this is more often than not, increasingly also a destructive process. That does not displace the attachment of the process but rather complicates it. The *kikar* scales as a landscape because of its stickiness with the monsoon (see Figure 3). The air of the monsoon nurtures stickiness and facilitates sticky temporalities as condensed forms of absorption (of light and water), as the shrub unfolds its living potential into time-frames outside the monsoon. This brings the *kikar* closer to the analytic of the monsoon forest, where an enzymatic led observation suggests that these *kikars* are also in some sense working with the monsoon. Therefore—between the cool and foggy winter where direct sunlight reduces and a scorching summer where moisture is lifted from the ground,



FIGURE 3 “Look at that! Isn’t Delhi so green?” an image from Delhi skies featuring a part of the Delhi Ridge as of June 2018. Photograph by author.

the monsoon and the *kikar* hold an elemental conversation that helps the *kikar* live throughout the year.

As the wind reversal of the monsoon carries with it, the bounty of moisture that the world provides, it synthesizes a form of liveliness, activating sticky temporalities. In what I read from Myers's insistence on liveliness; is a different way of articulating an intra-action that recognizes that the literal and representational are interwoven and as Myers (2015, 232) insists in her own work, is a way to "refuse to make clean distinctions between organisms and machines, or between vitalism and mechanism." The stakes of liveliness are high in a world largely ordered by neo-colonialism, capitalism and techno-scientific communities that partake in the legitimizing of those extractive projects. In Delhi, as in much of the world these days, the discourse of tree planting and afforestation interlinked with carbon capture is exercised by the state for developmentalist projects. This of-course is not methodologically new to the *vilayati kikar* discourse, as the introduction of the plant was interlinked with ideas of desertification, capital and control. As Diana Davis's (2016) work articulates, the invention of aridity is political. To write some life away in order to displace and replace, is political. Mann and Sehrawat (2009, 543) argue that the "project of colonial forestry prioritized the needs of the white colonizers living in Delhi, while coming into conflict repeatedly with indigenous peasants." They observe that the decision to move to Delhi in 1911 was linked to the afforestation programme that was widely experienced in the region during that time. Continuing on from 1947, as Baka (2014, 315) argues—"Prosopis was originally spread throughout India as part of a wasteland development program of the 1970s underscores the deeply political nature of the concept of wasteland." The *vilayati kikar*, was linked to the intentionality of colonial use—of making geography usable to the interests of government. In its emergence, I am interested in thinking with the invasive *vilayati* as a monsoonal possibility, a life with complex entanglements as viewed in/with forest and city, in capitalist ruins, as Tsing (2015) may perhaps describe. People are constantly wound up in the process of trying to geologically uproot it, weed it, as it somehow, with enzymatic and more-than-human collaborations grows back, some place else. I recollect the exhaustion of the gardeners who expressed the banality of the process—maybe there were other ways.

As more-than-human plant stories, implicated in writing/living with the monsoonal condition—an enzymatic relation opens up a way of reading stickiness as an ontological state. Sticky descriptions interrupt linear imaginaries that take causality for granted. Stickiness disorients causal tracing. Methodologies of reading and articulating life-worlds that affix themselves to terms like capture, feedback-loop, deterrence, etc are challenged. The forest/city is not breather of the loop, providing feedback but is in stickiness with death and life, air and leaf, elements and states as simultaneous interlinkings that are nurtured because of the monsoonal condition, an air that lets the world be. The tree is not a service to the air and enzymes are not services to the tree. They are ontologically sticky matters in the densities of world making, even through anthropogenic violence.

Just as the *kikar* enzymatically makes sense of light, moisture, bacteria and aerosols in the air: knowing the *kikar* through liveliness interrupts the loop and does not accentuate it. To pick up a lesson from the legendary work of the late Jagadis Chunder Bose (1918) who was interested in the study of plants and their movements: sentience is dynamic and is open to a variety of attunements. Atmospheres and plants cohabit that sentient temporality. Therefore, to take liveliness seriously is to take notice of the rearranging attachments of monsoonal

emergence. As Povinelli asserts in the Karabing manifesto: “In turning away from each other, entities withdraw care for each other. Thus the earth is not dying. But the earth may be turning away from certain forms of existence. In this way of thinking the Desert is not that in which life does not exist. A Desert is where a series of entities have withdrawn care or the kinds of entities humans are and thus has made humans into another form of existence: bone, mummy, ash, soil.” (Povinelli 2016, 28). The desert or the zone of aridity in some sense as a conceptual invention draws me to call on sticky interlocutors and atmospheres to make claims, of monsoonal interest. The methodological choice of reading the *vilayati kikar*'s emergence as a confrontational project by environmental interests is a political choice. Yet the sticky alliances between landscapes, atmospheres, and inter-species vegetal relations speak to a moving kind of transformation, where monsoonal form and temporalities are interlocked in these sticky alliances. No transformation, despite its violent effects is independent. Trouble sustains trouble. Somewhere in the continuity of colonial botany: pro-carbon afforestation, jurisdictional plantation fantasies and the desire for native plant ecologies is the complicity of a changing monsoon. It's retuning the story. My invitation through some of this sense-making is that monsoon airs can help us perform what Myers (2017) calls a colonial detuning: that somewhere in the disorientation of this project of flourishing are different narratives being sketched. Therefore, while many of our narratives situate themselves outside the language of stickiness, reconsidering what it actually does in sustaining forms of existence brings into perspective the multiple implications of what goes into keeping it that way. The stakes are high to conjoin with the analytics of collaboration in a changing monsoon. Stickiness, is a methodological offering of the monsoon.

## CONCLUSION

In conclusion, I argue that the cellular life of the *vilayati kikar*, through its roots, bark, enzymes, alkaloids and proteins offer speculation to an otherwise normative political reading of this species in/with the monsoon. Its alkaloids clear out other vegetal life from growing around it but its adaptive photosynthetic metabolism brings it close to a monsoonal cycle and its air. It survives through drought and it prospers with rain. It is attunement with moisture might seem violent to biodiversity and that is why it is colonially sticky. However, the *kikar* holds its own form of stickiness that makes sense of the air and the air of the monsoon conditions its presence. It represents the trouble that does not leave but teaches us to see the city's forest in metabolic and aerial terms. It shows us that enzymatic relations are embodied in monsoon air. Yet, life figures with the air of the monsoon. Even invasive life, becomes monsoonal.

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