

Forests Fanned by Waves: Embodied Ways of Knowing in a Mangrove Landscape

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Countries rich in biodiversity such as India, Brazil, Colombia, and South Africa proposed new rules for measuring natural ecosystems, ecological and biodiversity losses, and economic development. After much debate, those standards were accepted as “internationally recognized statistical principles and recommendations” at the annual meeting of the United Nations Statistical commission, March 2021.² This is indeed a much-needed step towards compensation of marginalized communities for protecting nature. *The Economics of Biodiversity*, published by the Dasgupta Review¹ in 2021, highlights research that centers on creating valuation systems for ecosystem services that are not bought or sold in a conventional way. The preface reads in part:

Nature has two properties that make the economics of biodiversity markedly different from the economics that informs our intuitions about the character of produced capital. Many of the processes that shape our natural world are silent and invisible. The soils are a seat of a bewildering number of processes with all three attributes. Taken together the attributes are the reason it is not possible to trace very many of the harms inflicted on Nature (and by extension, on humanity too) to those who are responsible. Just who is responsible for a particular harm is often neither observable nor verifiable. No social mechanism can meet this problem in its entirety, meaning that no institution can be devised to enforce socially responsible conduct. It would seem then that, ultimately, we each have to serve as judge and jury for our own actions. And that cannot happen unless we develop an affection for Nature and its processes.

Considering these recent developments, my narrative here recounts a personal experience of visiting Pichavaram, a mangrove habitat in the state of Tamil Nadu, South India.

With an area of 1100 hectares and separated from the Bay of Bengal by a sandbar, Pichavaram is a village in the Cuddalore district of Tamil Nadu about 150 miles from Chennai, my hometown. In 2002, I visited my friend in Pondicherry, and we went on a bike trip to the mangrove forests of

¹ P. Dasgupta. *The Economics of Biodiversity: The Dasgupta Review*. HM Treasury, 2021.

² “Growing support for valuing ecosystems will help conserve the planet, *Nature* 591, no. 178 (2021).
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Pichavaram. Mangroves store among the highest densities of carbon of any ecosystem, and more than 170 species of birds and economically important fishes live there. The Indian Government had declared Pichavaram as a reserve forest in 1987. We asked a rowboat man to take us through caves all the way to the Bay of Bengal and back. We paid him for six hours of his time. In his sixties, he had lived in the same part of the world for all his life and had an intimate relationship with Pichavaram and the Bay of Bengal.

Human entanglements with the immediate environment and culturally specific ways of knowing the place make sense in Pichavaram where the environment is framed by the two rivers, Vellar and Coleroon, by daily tidal changes, and by a labyrinth of mangrove swamps. The complex root system and intertidal ecosystem offer respite during times of seawater intrusion and flooding. Traditional harvesting practices and subsistence economies form a predominant way of life for many of the families in the villages. As we meandered slowly through the waters, the boatman, who told us his name was Manickam, pointed to different sites where fish breed by the mangroves. We spent the first couple of hours birdwatching and learning the Tamil language names for the mangrove forests and resident species. Manickam named about 12 different mangrove species using native names for them and mentioning that a few species that he remembers hearing about as a child cannot be found. The mangrove forests have a beautiful name, “alaiyaathi kadugal,” literally meaning the forests fanned by the waves. When the veteran boatman pronounces this word, he softens the ‘alai’ and extends the ‘aathi’. When he just referred to wave as alai, there was no softening of the sounds. I was curious and asked him why he kept softening the alai in the compound word – alaiyaathi. He explained in the most unassuming way that he was referring to the nurturing relationship the ocean has with him as well as the roots of the mangroves: “Just as a mother uses the edge of her sari to fan her infant on a hot day, the great mother (ocean) nurtures these shores.” He also saw the tidal rhythms and the mangroves as essential threads that bound the lives of all residents of the village. He had a question for me: Are the two of you a couple? We answered in the negative describing ourselves as good friends with a love for nature and birding. This question opened itself into a longer conversation on love, which is worth recounting because his perceptions on love are built integrally into his relationship with nature.

Manickam as our guide opened and closed worlds within the mangroves through his own insight of people and place. His investment in learning about his customers in a matter of a few hours was another exciting aspect of this conversation. These interactions with his customers may even just be a onetime interaction, but he engaged whole-heartedly in this human-human communication with a generous, keen, and compassionate attitude. How he assessed us also implied what part of his world we would be invited to see. This is a strange privilege and honor that happens only by one's own lived life, and how it is assessed by another through a resonance of heart and perception. His is a subtle narrative, easily missed, because we often assume rather

naively that a landscape is what we see. And yet, a person who is entwined with that landscape has the capacity to reveal or hide the landscape, disguising it with gentleness, almost protective of it like one would be of one's own inner self, one's child, or a younger sibling. This warmth of relationship must be earned by the value of one's lived experience that comes out viscerally, somehow sensed by others that we meet. It is this warmth that is the essential core of a narrative that blends culture, nature, and our relationships with all life and each other.

I asked him why he wanted to know if we were a couple. After all, we had already paid for his time. He laughed and answered that young people in love often requested to be taken to quiet solitary spots for privacy. I wondered how much privacy they could get since he, a stranger, was with them. He laughed again and said he was the 'kattumaram', the boat itself. I found his response fascinating; I understood identifying with one's work but here was a living human being describing himself as the boat itself, a non-living thing. I asked him to clarify what he means when he says he is the kattumaram itself. He talked about the making of the kattumaram, just the bare logs lashed together with rope. He described the issues with sourcing marine-quality wood and how there was no interest or assistance for the small-scale fishing sector from the state government, plus the additional burden for artisanal fishermen in facing the consequences of industrial-scale fishing. He mentioned the existence of SIFFS², operating in the southern districts of Kerala and Tamil Nadu, which had been trying to address the small-scale fisheries. Just then a grey plover briefly alighted on our boat and delighted our boatman Manickam. The bird populations have declined from his childhood days when woke up to the sound of an orchestra of birdcalls and the mangroves bejeweled in dewdrops.

He compared it to Ilaiyaraaja's music, "Raja sir paatu maari," a South Indian film composer credited with composing more than 7000 songs and a local favorite to emphasize the orchestra effect of birdcalls. He can imitate all the birds in the area including migratory ones and had extensive knowledge about their nesting, foraging, and mating behaviors. As he navigates a narrow inlet, he describes the different species of mangroves pointing to one with knobby roots, and affectionately addresses the mangrove as the one with the unusual knees. In a cheery banter with the mangroves, he paused the boat, handed the oar to my friend, and asked him to hold on tightly. Cautiously we looked around, asking if there had been any recent sightings of crocodiles in the mangroves. He got off and wandered into the inlet, questioning the mangroves, talking to them. "They hear me," he said. There are no crocodiles (mudalai), he assured us.

He continued, "They are like us too; these mangroves are a vast, ancient, and intricate civilization. In the lives and lifetimes that are lived here, there is conflict (muranpadu), there is reciprocity (parasparam kodukkal vaangal), and altruism (thyagam). Be quiet and listen very very carefully.

² South Indian Federation of Fisherman Societies

You can hear them breathe. They (the mangroves) know you are here.” Mirroring my own experiences in nature, this awareness that the boatman was referring to felt primitive within me.

He pointed to giant crabs that walked across the mangrove tentacles and insisted the mangroves and the crabs recognized each other. He also pointed to certain mangroves, calling them the mother tree or the wise tree. He defined the mother tree as one that had a knowledge of survival which then was passed on to the nearby ones. When the mother tree was strong, mangroves within her network were great survivors. I questioned him more: You told us there are more than 10 different native mangrove species; does this inlet only have one species? Are the mother and the network composed of the same species? What happens if the mother dies? Is there competition between different species?

Our training in biology had strong links to Darwin, and the boatman brought in unusual ideas that relied on intuition and human connection to land and environment. He answered all my questions: “An inlet can contain more than one species; the mother and network are not always the same species. If the mother dies, her network weakens considerably and may be lost. There are connections very deep beyond the roots. Yes, of course there was competition; life urge contains within it the element of competition but also of altruism. This was one body with many souls. I am one of the souls.”

I asked him to tell me more about ‘being the kattumaram.’ You are alive and the wood that is used to make the kattumaram is removed from the tree. It is not alive; how do you then think of yourself to be the kattumaram? Manickam answered, “What is living? Is it that which breathes (moochu)? Is it that which has a pulse (nadi)? Is it that which is conscious (unarvu)? When my grandfather was alive, everyone thought in terms of the whole mangrove systems, with all their interconnections, feedback loops, and harvested mindfully always allowing the system to rejuvenate. If we coexist then we can have plenty; if not we will soon have nothing left.”

I leaned over the boat, straining to catch a glimpse of these ultrafine details and then decided to step down, wading in with Manickam. Manickam’s fingers wrapping around the mangrove roots seemed to echo the liminal boundary between the material and the metaphorical. For a few minutes, I touched the water, the aerial roots, the baby mangroves that had just recently taken root, and felt as if in an intense reverie, the salty air whipping through my hair. He took control of the kattumaram again and continued talking: “I am very silent and the lovers have their privacy. When I maneuver this kattumaram, I know its movement in my skin and bones, the ocean breeze rolls over both of our bodies, we are one.”

For him, there was no dichotomy between mind and matter, nature and human, or the metaphysical and the scientific enquiry. I am now inclined to believe Manickam. I want to know a little more about him and ask him to tell us about his family and his children. He says the baby

mangroves are his children; the baby crabs, the baby oysters, the baby shrimps are his children, as God did not give him any. He describes his wife as the most beautiful of women, her heart pure like milk and her face lit with a smile no matter what the situation. Now it was my turn to ask: Was his marriage arranged or a love marriage? He recounted his first meeting. She was harvesting native oysters (sippi): “indha ver maari thaan en manasa pidichukitta.” He poignantly described as her having held his heart-soil as the mangrove’s roots hold onto the brackish land—this love between man and woman facilitated by the oysters was rich and vivid and connected tenaciously to the landscape they lived in.

For the next hour, he rowed us through the magical landscape. I was lost in the sound of the waves lapping against our boat as my friend assiduously took photographs. In this landscape time entrenched several rhythms. I felt like I was audience to evolutionary processes set in motion billions of years ago, the biological multitude of forms and adaptations, and a harmony of textures resplendent both in the sunlight and in the dappled shade. In Pichavaram, more than in any other place, the indivisible threads of life were palpable, energetic, and timeless within capsules of time. Manickam began to sing against the background of the sea, the rhythmic ‘elelo’ resonating in his guttural earthy voice.

Suddenly memories of childhood dinners in the open terrace of our tiny apartment home flooded my mind – the stories and moonlight and balls of rice and yogurt filled with something spicy, waking up to the delicate fragrance of parijata (*Nyctanthes arbor-tristis*) flowers, white with orange stalks falling onto the earth in the dew-laden dawn, those gregarious rose-ringed parakeets. There was a huge old banyan tree situated on a busy road in Chennai. In a stroke of luck, the banyan was attached to a temple and had resisted being cut down. It offered a respite and a connection as I cycled past during my childhood. The tree was the home of beautiful rose-ringed parakeets where they delighted in the banyan fruits. They roosted, nested, and communicated incessantly. The young parakeets were most curious, taking in everything around them. The rose-ringed parakeets were everywhere from holes in coconut trees, neem trees, in the midst of the bustling city and far into the farmlands. These trees were storytellers of a different past, of sheltering passers-by and hearing their hopes and despairs, of nesting sites, a record of the first flights of baby birds, of death and destruction. I wondered what the mangroves whose lives seem to be so inexorably intertwined with all species including *Homo sapiens* might think of us. For the mangroves, would we be larger species of crabs foraging between their feet? I asked Manickam what he and his wife enjoyed the most of their catch from the mangrove ecosystem.

He promised a surprise for us before we returned back. He told us about his mother and his childhood playing and swinging amidst mangroves. His mother wove tender mangrove branches into makeshift toy creatures, a fanciful imaginary world. A child could have easily spent hours

catching fireflies, moths and damselflies, the little ruler of nature's kingdom. We laughed, Manickam was a very good storyteller, he created vivid visions of a long time ago, and we were transported in the time machine of his language.

I asked, what did he think of love, of young lovers? He answered that they were good for his business, but he wished that the adventurous ones did not choose motorboats, as the noise and pollution contaminated a pristine landscape, a cultural way of being. He worried that the young lovers had forgotten the rules of engagement, the "kattuppaadu"; they clamored for freedom. The regret in his voice reminded me of my father's deep belief, one that he emphasized everyday—there is no freedom without responsibility. "Did we look like we were those young irresponsible lovers, since you asked us as soon as we got into your boat?" I asked, a bit miffed. Manickam was thoroughly amused that I seemed chagrined. "There is love isn't there, perhaps one-sided?" He challenged us and brought giant glances of reprimand from my dear friend. Perhaps, isn't my friend here full of good looks? I joked. Manickam laughed and answered very gently, "Yes he is indeed like a movie hero but you are not yet ready for love." An answer and insight that completely took me by surprise. I said, "How so and how could anyone but me know that?"

Once again in a very gentle voice, Manickam laughed, "Life is only known by living. You are here today in search of the mysteries of life, the stories of living. I see many young people and I was young too. You have a longing; along the journey you will find many treasures." Part prophecy, although I had not found words to describe myself, Manickam's penetrating understanding of people and insights of time and place felt magical as the boat flowed through the smaller and larger inlets among the mangroves. We saw pelicans, cormorants, mallard ducks, black bitterns, avocets, lapwings, plovers, herons, egrets, ibis, and river terns. Manickam estimated that there were about 50% fewer birds than from his childhood due to anthropogenic pressures on the delicate balance of the mangrove ecosystem and the tropical cyclones.

As promised, he took us to two unusual spots: an area where we could watch mangrove propagules that germinate while on the mother tree and fall into the saline water developing roots in the soil. Manickam uses the tamil word, "kuthikkum," for the propagules, meaning to jump. The imagery of jump made me reminiscence of little boys and girls jumping into the ocean and swimming gleefully as we attempted to teach them to read and write just a couple of years ago. There were several different stages of growth that we could observe, free floating propagules, one-year-old rooted seedlings, and little shrubs. Manickam showed us how the mangrove leaves secreted sugars which would attract ants but prevent other insects. Wading distance from this fertile patch of viviparous mangroves, there were pink lotuses, which he asked us to pick. Heartrendingly beautiful, as the sun filtered through the clouds. In the light breeze, the enchantment of the lotus with its delicate fragrance was spiritual.

What we experienced, landscape, birdsong, a blanket of lotuses, the sunlight rendering the lotus petals translucent, mangrove propagules – the tender passion I felt – these memories became a layer for more cognitive processes to be written, embossed with emotions in a future that Manickam had prophesied for me, while situating themselves over older childhood memories of place and experience.

Our next and final stop was to a deeper older section of mangroves where we saw almost a thousand pneumatophores! Here, the choicest and tastiest fish and mussels were to be gathered. Manickam asked us to come and help him gather some to take home to his wife. His artisanal fishing device was a small cylindrical basket made from coconut leaf midribs and lined with coir which he deftly positioned to collect the fish he thought perfect, releasing the rest. We picked off some oysters from prop roots and I tasted the salt crystals off a leathery, shiny green mangrove leaf. While we were foraging, an ibis feeding and walking alongside paused and gave us a bored look of disdain before she flapped away. Manickam paddled us back and invited us to his home for an early dinner. Manickam's beautiful wife scraped and sliced the lotus roots while he and my friend prepared the fish together on an open wood fire. Manickam's wife pan-roasted the lotus root in groundnut oil from nearby Cuddalore where groundnut was cultivated. They primarily used marachekku (wooden mill) cold-pressed peanut oil from an old-fashioned ox-driven mill to cook. She seasoned the lotus roots with mustard and cumin, finishing with a generous garnishing of fresh juicy shredded coconut. Since I am vegetarian, she served me the lotus root poriyal with hand-pounded rice and buttermilk.

She held indeed, as Manickam had promised, a mastery over flavoring. My friend shared their meal of fish in a spicy gravy and hot-stone-popped oysters. We listened to more stories and songs of the mangrove forests and ended the day drinking toddy wine layered with ginger and nutmeg overtones. We rode our bikes with a basket of pale pink lotuses against the pink-orange evening sky, the color echo weaving life and poetry. I think the lure of the wilderness will remain irresistible, beckoning humanity softly into its folds. In our rush to development, we cannot forego this lovely sense of human community and our own individual sense of 'wildness', our capacity for layering landscape, emotion, friendship and food; our creativity in the form of poetry, song, dance and art. We have a responsibility towards these silently beautiful places across the world and the human beings whose sustenance is closely tied with place.



Image: Sandhiya Kalyanasundaram, *The Dance of the Propagules*, 2021.

Works Cited

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