

March, 2020

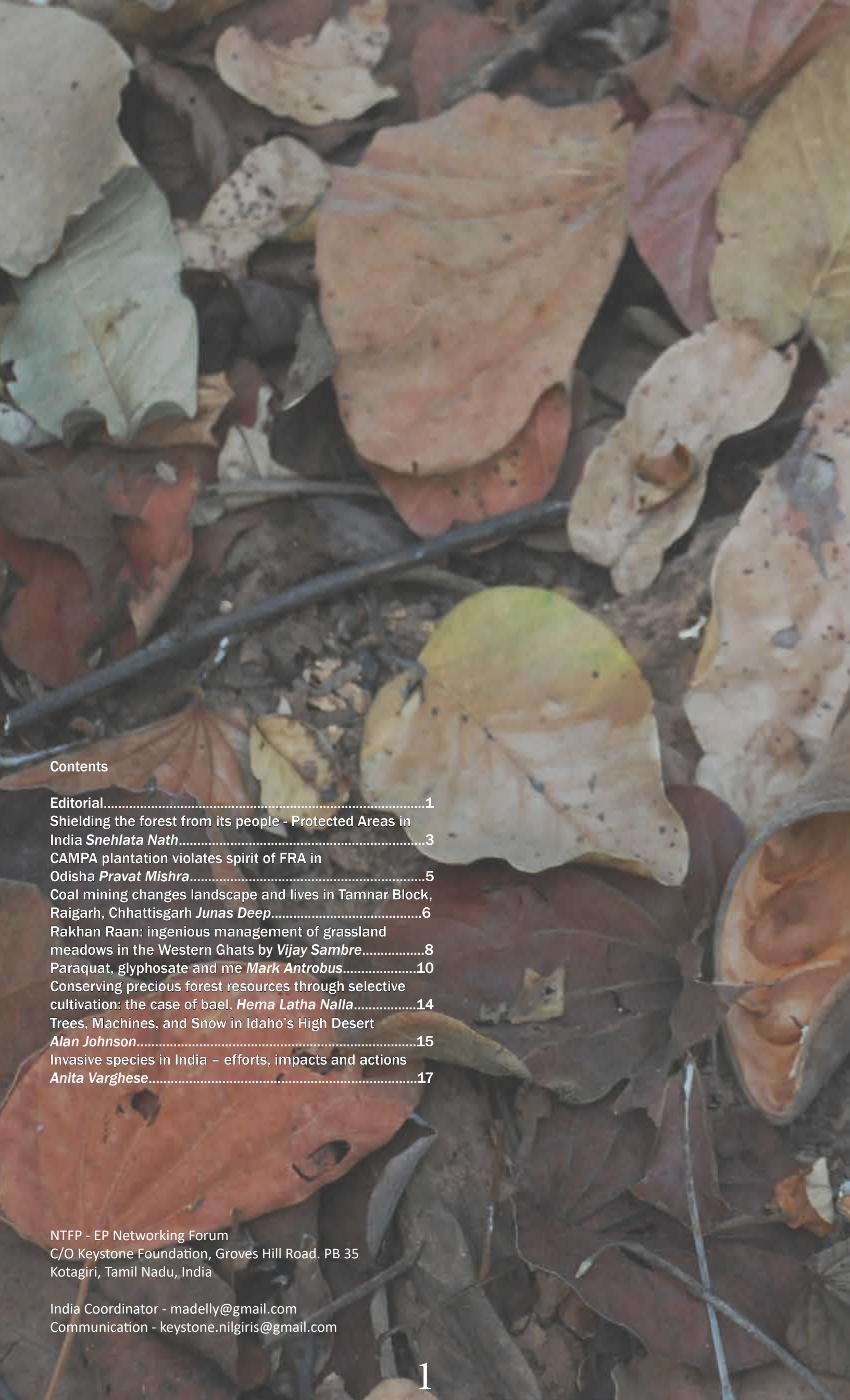
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Editorial: Insiders, Outsiders & Citizens

The protests at Shaheen Bagh brought into sharp focus a paranoia that at least some Indians have about ‘outsiders’. It could be on the grounds of religion that one is discriminated against – as we saw with the framing of the Citizen’s Amendment Act (CAA) – or the fact that the people come from places beyond our national borders. The debates and arguments about these matters have continued, marred with violence in parts of Delhi, under the very watch of our political leaders. The issue as well as opinions have become polarised and it is seldom easy to probe into the roots of these events. The mainstream media is an active proponent of these goings on and pretends to have much concern and knowledge about the marginal communities that it writes about.

What’s missing? Exactly that which has been missing all these years since pre-colonial times, and what is missing even after the rights of forest peoples have been officially recognized since 2006 under the Forest Rights Act. Information sourced from the Ministry of Tribal Affairs tells us that up to 31st March 2019, 42,37, 853 claims have been filed for individual and community rights (40,89,035 individual and 1,48,818 community) of which only a total of 19,64,048 titles have been granted. The Ministry holds that 37,17, 552 claims have been “disposed off”, meaning that it has dealt with 87.72% of the claims, a supposedly high rate of success, despite the large number of rejections. However, from the several civil society organizations who are working to promote the implementation of the FRA we learn that claims have been rejected without valid, adequate or understandable reasons. Many adivasi communities have been left in the lurch across the country.

What is worse is that adivasi and forest peoples have also been subjected to legal violations *despite* having their community titles for land accepted. In Srikakulam, the Savara peoples who have long been resisting the granite quarry mafia to protect the sacred Kannedhara hills, are now facing the assault by CAMPA, a compensatory afforestation scheme encroaching upon community lands. Similar stories unfold from Mayurbhanj in Odisha and East Singhbhum in Jharkhand. The Savara are one of the 75 indigenous peoples listed as Particularly Vulnerable Tribal Groups but the state only exacerbates their vulnerability. After these seven plus decades of independence, laws to ensure tenure security, the special status of adivasi communities that gives them special rights to land and livelihoods, these people continue to be evicted at the whim of a new coal deposit or an old-fashioned conservation norm that believes that humans and nature cannot co-exist.

The idea of creating Protected Areas for conservation is by excluding communities from the habitats they lived in for generations. Many such are

as are cordoned off, the communities’ access to their sources of livelihood and spiritual sustenance restricted. Ironically, the local people become ‘encroachers’ on their land, and viewed not very differently from the ‘foreigners’ under the CAA. This is worse as the adivasi is not asked to prove anything: he is just asked to accept a compensation for his land and expected to move out. Such instances of callousness makes a mockery of these communities who are perhaps older than the people who represent our state – the same people who use terms like ‘outsider’ and ‘foreigner’ and decide who belongs and who doesn’t – with ethnic and linguistic identities rooted in our soils.

Not much has changed since February 2019 when the Supreme Court first ordered the eviction of the adivasi people and other forest dwellers whose claims had been rejected. It assumed that all those whose tenure claims were rejected were encroachers – the states later accepted the lack of valid reason evidence in the rejections – and the evictions of such people was posed as a legal necessity. Over the course of the year there were periodic hearings in court but the prosecution hardly bothered to represent its adivasi citizens for whom the law was enacted. A year has passed and we still have no clear understanding about where the adivasi communities stand with respect to the rights over their territories.

It is perhaps the sign of the times. All minority or marginalized peoples, especially those who challenge the ruling regime’s ethics, or those who by their very existence raise fundamental moral questions, are a threat. As long as possible regimes ignore them and do as if they don’t exist, or give them short shrift, but the time has come when a conversation, however rude and biased, has to begin.

Madhu Ramnath
March, 2020

Shielding the forest from its people - Protected Areas in India

Snehlata Nath

Historically, indigenous people have been custodians of large landscapes and conserved nature with practices like sacred groves and first fruit festivals. The perspective that large state-managed areas of wilderness was required for protection of wild-

horns. We watched the tigress for a long time and returned. But the questions in my mind were: Is this

kind of tourism that caters to urban rich better for the Park than the few adivasi people that lived there? Is it the tourism or the adivasi that causes more harm to biodiversity?

On a recent visit to Mudumalai, we were taken to the forest by a Betta Kurumba adivasi employed as an anti-poaching watcher. He was smart and



life came from America; this vision was preceded by a history of genocide of indigenous people and the rampant hunting of animals. The Yellowstone National Park in America was created in 1872, after which the protection of wildlife and biodiversity was documented and managed by the state. These ‘management’ concepts spread across the world and were adopted by countries like India, where inviolate places are hard to find. Once integrated with the adivasi lifestyle, biodiversity and wildlife has now become factors that require state management. The current trends seen in India are illustrated below with examples.

I visited Bandhavgarh National Park several years ago. The adivasi people belonging there now live in the fringes of the Park and many young men work in the surrounding resorts or as tour guides and drivers. A desired number of jeeps go into the Park, following different routes, and we too went in one. Suddenly a message came to our driver that B2, the tigress, has been spotted and all the vehicles abandoned their routes and rushed towards the tigress.

B2, with trails of dust storms, screeching tyres and

knowledgeable and believed that his community, which earlier lived within the Protected Area, was a problem for the wildlife. His relationship to the forest was the modern state-management approach: transects, scientific names, GPS points where animals were spotted, etc. I couldn’t but mark the change in a person from the adivasi community. In other villages, adivasis both revered and avoided elephants, and were generally afraid of them. Plants were known as medicine and wild food, and every spot in the forest had a name and a story, or marked a boundary. As in Bandhavgarh, some questions came up again: will this new relationship of fewer adivasis and the forest lead to better conservation? Would it have been better to leave adivasi people within the forest to follow the rhythms of the seasons and learn from their ancestors? Could they have played a role in conservation of this much logged forest? Would the current invasion of Lantana not have occurred if people continued to use the forest?

The forests of the Panna Tiger Reserve are under threat from the Ken Betwa River Linking project. Here the focus is on the communities within it and their relocation; the government offer of Rs.10

lakhs per adult in a family was accepted by some Gond adivasi families. These families now live in a clustered housing site and faced a shortage of drinking water; they had spent most of their money on relocation, the young men had bought motorcycles, and many were caught in the web of touts and agents. Most people did coolie jobs in nearby towns or migrated to Delhi for work. The women talked about the loss in their food availability, they could no longer grow vegetables or even have a kitchen garden. They could not keep livestock in this new place and longed for their lands and forests. How can relocation be a priority for conservation, when the forest itself was going to be diverted for a river linking project?

In January 2020, 100 families were relocated from the Simlipal Tiger Reserve. They were kept in temporary shelters for three months and will be given three meals a day. The compensation for the relocated families is 10 bighas of land, Rs. 10 lakhs and a Biju House, which according to National Tiger Conservation Authority is a good relocation package. They are confident of translocating other families also soon. The news item hardly got any media coverage but was covered in <https://odishatv.in/odisha/over-hundred-families-relocated-out-of-simlipal-tiger-reserve-430326>. It would be difficult to establish long term livelihoods for these people as 10 bighas is insufficient for a family to survive without access to NTFPs. Apart from bad economics, the relocation will also undermine the socio-cultural relations between nature and people.

Even if we overlook the human or adivasi-rights dimension, official wildlife management, with its meagre staff, is incapable of protecting large wilderness zones. A recent report from Sambar Lake in Rajasthan conveyed the mass death of thousands of migratory birds in November 2019, the reasons for which are still being debated. Electrocution from illegal bore-wells running on electricity in and around this salt water lake is the most obvious reason. We often hear of revengeful poisoning of tigers

and leopards due to cattle being lifted and where no compensation was provided. Forest fires in protected areas are common and have destroyed large areas every year, like in Bandipur in 2019. These incidents demand that we rethink official methods of wildlife management like those of creating inviolate forest areas by removing the adivasi people from the landscape. Schaller, the renowned ecologist said, “Conservation cannot be imposed from above. Any conservation effort must involve the local people, based on their interests, skills, self-reliance and traditions and it must initiate programs that offer them spiritual and economic benefits.”

Shrinking forests and the extinction of species at a global level entails that protection too will happen globally, in an effort to save the world’s biodiversity. However, a ‘fences and fines’ approach in human dominated landscapes, as in the southern hemisphere, may not work. We could pioneer a new management method gives centre-stage to the adivasi people and their knowledge of the landscape, and builds on the existing traditional indigenous ecological knowledge. The Forest Rights Act, 2006, and the Wildlife Protection Act, 1972, conflict with each other and need to be harmonized. Though much has been tried with ‘eco-development’ and setting up of Eco-Development Committees in the villages/fringe relocated settlements, there is not much success due to a variety of reasons; the concept has not yet been mainstreamed into the larger society.

This results in cement factories coming up in the fringe of sanctuaries like Gir; that the National Mineral Development Corporation shares the boundary with the Panna Tiger Reserve, etc. The reason for the destruction of forests and the shrinking of wildlife lies with the ever growing population and its needs, with industrial growth, demands for highways and mining in forested areas. Our approaches till now have unfairly targeted the adivasi, those very people who have been stewards of the forest.



CAMPA plantation violates spirit of FRA in Odisha

Pravat Mishra

The Forest Rights Act (2006) and its implementation across the country was to undo the historical injustice meted out to tribal peoples and other forest dwellers since colonial times. Forest lands in their possession was to be returned to them after due processes of verification. More recently, the CAMPA (Compensatory Afforestation Fund Mangagement and Planning Authority) Act was passed to afforest areas in compensation for forests that had been diverted for non-forestry purposes. In the Thakurmunda Block of Mayurbhanj district in Odisha, revenue lands under the cultivation by a tribal farmer has been usurped by the Forest Department under the guise of afforestation, through the CAMPA scheme. The latter scheme has led to loss of livelihood for some tribal families, defeating the spirit of the FRA. Taramara is village under the Taramara Gram Panchayat on the fringe of Handiphuta Reserve Forest, within the Thakurmunda Range and Karanjia Forest Division. Of the 271 households 230 belong to tribal communities which include the Saunti, the Kol and the Santal. Farming and the collection of NTFPs are the main livelihood options for the people. The chief NTFPs are mahua and tola (mahua seed, which is pressed for oil).



Two tribal families had been cultivating a patch of revenue land, that adjoined the forest, for the past last 35 years. Neither of the families had any documents to ascertain their rights over the land but had not faced any hindrance from the authorities. One of the two families belonged to Purna Chandra Banapadia. In June 1983 Purna was served an eviction notice by the Tahasildar of Karanjia and was officially evicted from 1.60 acres of the land. The total patch comprised of 2.76 acres. Despite this, Purna Chandra's family continued to be in possession of the land and cultivated the land as before. In 2016 the Forest Department, without informing Purna Chandra or the Gram Sabha, decided to plant on that patch of land. They planted 30,000 saplings of karanj and Acacia sp. with the support

of the CAMPA funds in area of 150 ha, including the lands occupied by Purna and Mohan Mahanta (the other family). The scheme came under the Assisted Natural Regeneration.



The violations of the FD are on many fronts. First, as the land is revenue land, the FD is required to acquire the land as per norms (or take permission). Second, as the land and the village comes under the PESA, the FD is mandated to get the consent of the Gram Sabha before embarking on a plantation scheme. And third, the FD did not inform Purna Chandra or Mohan Mahanta about its plan, even though it would impact their livelihoods. (It was not only the paddy that they lost but also the income from the mahua flowers, the mahua seeds as well as sal seeds; they procured 3 quintals of mahua, 50 kg of tola and 50 kg of sal seeds). The Tahasildar of Thakurmunda admitted that the FD has committed a mistake, and that the plantation site is not forest land. In fact, this land is reserved for the rehabilitation of displaced families from the core and buffer areas of the Similipal Tiger Reserve. However, the procedures required to change the status of the land for this purpose, is not yet clear.

The initial opposition and complaints by the victims was unsuccessful as the FD did not respond. But Purna Chandra's perseverance made the FD admit it's mistake moved. The department realised that it has committed a mistake. So the FD, to compensate Purna Chandra, appointed his son as a 'watcher' in the department, an adhoc post, to guard the planted saplings that were now almost 3 metres tall. Purna Chandra's family compromised and accepted.

The FD is silent now, having outsmarted the victims; Chandra's family is silent too, fearing the termination of the adhoc post. The Tahsildar is also silent, hoping that the incident will be quietly buried. RCDC has raised the matter at the state level, but as yet there has been no response.

Coal mining changes landscape and lives in Tamnar Block, Raigarh, Chhattisgarh

Junas Deep

Tamnar is one of the Blocks in Raigarh district of Chhattisgarh state and has huge reserves of coal. The district is currently home to 17 coal mines, 26 sponge iron units, and over 13 thermal power stations that are either operational or under construction. Increasing installations of coal washeries, sponge iron plants and coal-fired thermal power stations make the district one of the state’s primary power hubs. In 2000, coal mining started in and around the village areas of Tamnar Block and has changed the landscape drastically. The private companies that undertook the mining, as well as the government that supported it, made the villagers believe that mining would give them better livelihood opportunities, education and health facilities. But as the mining progressed the villagers realized that they were being conned.

Industries and private mining companies have acquired agricultural lands by using all kinds of tactics that range from the payment of money (as compensation) to harassment. The entire case, relating to the Gare Pelma Coal Block, and spread over an area of 16,649 hectares, is featured in the “ejatlas”, a website that gives more details of the mining that began in 1998. The conflicts are rated at the highest level and concern land tenure, pollution, a variety of health problems, displacement and intimidation. Almost 1000 hectares of forest land has been given to private companies for setting up sponge iron plants. In the last 15 years, the landscape of Tamnar block has drastically changed and heaps of coal dust and fly ash cover the area which was once covered by forest. It has also impacted the livelihoods of the residents of the region.

Deforestation due to mining has led to a decline of more than fifty percent of the NTFPs in the region. A majority of people living in the vicinity of the mines are tribal communities who are totally dependent on agriculture for their survival. Extensive mining operations in the region have negatively affected farming due to loss of land, resources and cutting down of trees in forests. The people have to bear the negative impacts of deforestation and deterioration of their surrounding environments such as loss of livelihoods and the risk of serious health hazards. Coal mining leads to severe health risks and environmental damage and questions the current policy emphasis on the use of coal for energy generation. The most commonly reported health conditions include hair loss and brittle hair, musculoskeletal and joint pains, body ache and backache, dry, itchy and/or discoloured skin, dry and cracking of the soles of feet, chronic dry cough, breathing difficulties, eye and stomach complaints, chest pain and kidney problems. Dry cough, hair loss and musculoskeletal disorders including joint pain are most common among women.

Raigarh, which was once rich in water resources, is facing a severe water crisis. The Kelo river that runs through Tamnar block is so polluted due to the discharge of mining waste that it now black, and even the ground water is seriously affected. Of the 116 villages in the Tamnar block, 90 villages are facing serious groundwater depletion. The health complaints can be traced to pollution of both water and air; local ponds and streams which used to be good water sources are now highly contaminated with toxic metals. All this has changed the lifestyles of the people leaving them with no option but to migrate or to work in mines and industries as temporary workers. Many people have died from respiratory and other health diseases in the last two decades. The immunity of the people has drastically reduced due to living in the polluted environment. Even after the massive damage to the environment



and the people in the region, the government has not stalled the mining. Instead, it has proposed more industrial projects in Raigarh district which will affect another 54 villages in the district. The Ministry of Environment, Forests and Climate Change (MoEFCC) had submitted a detailed report on the impact of coal mining in the Raigarh district, but no action has been taken so far by the government. If the current trend continues many more tribal villages will be devoured by the mega power companies. However, the people are protesting and trying to turn the tide. They are attempting to publicize the negative impacts of coal mining locally as well as globally; the other reasons are related to the violations of human rights by the state and the coal companies. The protests are also urging the state to pay attention to the negative impacts of mines on the health of people and the environment.

PRERAK is working in Tamnar Block with the local communities, building their capacities on the legal provisions they can use to protest. The people of 54 villages have now succeeded in preventing the proposed coal mining by the Mahagenco Power Plant. There have been community-led rallies and campaigns and village meetings and workshops: the overall aim is to get back the community rights over their forests and a raised level of awareness.





Rakhan Raan: ingenious management of grassland meadows in the Western Ghats

Vijay Sambre

In the northern part of the Western Ghats of Maharashtra, the Mahadev Koli and the Thakar communities practice rakhan raan, a system of grassland use. These grasslands are privately owned by these adivasi people, and protected and managed for securing fodder to be used during months of scarcity. These grassy meadows have been left undisturbed for a few generations and the rakhan raan system ensures that fodder grasses are carefully harvested after completion of their lifecycle and the dispersal of seeds. This results in a healthy regeneration of local grass diversity, and provides food security for the local cattle.

Contrary to modern science which recommends harvesting fodder when the grasses are flowering – for maximizing nutritive values – the rakhaan raan practice works on a different logic. This logic takes into account that extensive harvest of wild grasses during the flowering phase will hamper their regeneration and eventually exhaust the local fodder resources. The rakhan raan tradition, believed to be between 80-90 years old, safeguards the regeneration potential of the fodder species, simultaneously providing fodder security to the cattle belonging to the local communities. This local tradition also ensures safe and grazing-free habitats for grasses to flourish, making rakhan raan areas a sanctuary for grass species in this semi-evergreen forest landscape around Kalasubai Harishchandragad Wildlife Sanctuary. Furthermore, the tradition not only supports grasses but also birds, amphibians, reptiles

and smaller mammal species dependent on these grasses for food and shelter, playing a significant role in the conservation of native, rare and the unstudied biodiversity in this region.

The Mahadev Koli and the Thakar *adivasi* communities maintain the rakhan raan chiefly for their dangi cattle, indigenous to the area. The grass species found include: haral (*Cyanodon dactylon*), ber (*Ischaemum tumidum*), dhokal (*Heteropogon sp.*), kahandal (*Themeda triandra*), turada (*Pseudanthistria sp.*), and kolavha (*Setaria pumila*). Field observations showed that the average yield of dry grass is 4 ton per acre, which is estimated at 40 cart-loads. However, the yield harvested annually from these protected areas ranges between 13 cartloads to 2 cartloads (a bullock-cart holds approximately 400-450 kg of dry grass). It shows that the rakhan raans are not always harvested to their full capacity.

Families harvest rakhan raan areas for 3 different purposes: fodder, thatch and rouging the rice fields; rouging is a practice of burning small plots in the field using dry leaves and cow-dung to set up a paddy nursery before the monsoon. Based on the proportion of grass harvested from the area, the yield of the rakhan raan has been found to be considerable, with a maximum harvest of as much as 50 cartloads and the minimum being 3 cartloads. According to the communities using the grasses the average yields vary between 3 and 20 cartloads an acre. The fact that most of the rakhan raans are not harvested fully – 80% of them are only partially harvested – may be an indication that these grasslands are losing their significance as a livelihood option. In emergency situations, such as heavy rain that makes it difficult to take the cattle far away to graze, these grasslands are freed up for a few days.

Of the data obtained about the use of rakhan raans from 237 households (in 13 villages) one saw that 37 families used the grasses for fodder; another 37 reported using the space for home maintenance, and 31 used it in rice farming operations. In the same villages, 21% of the households kept the rakhan raans; the total use of 9% of the land is kept for these grasslands.

While studying the tenure arrangements it was found that most of the rakhan raans are situated in private lands (97%); only 3% of the total land under rakhan raans were under Forest Encroachments or ‘Palat’s. In addition, as much as 10% of privately owned lands of the local communities were conserved under this tradition. These privately owned lands were thus supporting grass diversity in semi-evergreen tracts and indirectly also supporting local biodiversity. Conservation efforts need to take into account these private lands as well as state owned lands to truly address grassland diversity.



Community regulations and mutual understanding help protect the grassy meadows from fires. As the grasses are harvested only after completing their lifecycle, which includes the dispersal of seeds, the regeneration of the species is guaranteed. These areas with vigorous grass growth and large species diversity act as seed banks for these neglected species and provide a vital support to the entire ecosystem. Communities prefer harvesting rakhan raans in November for optimum palatability of the grasses.





HEALTHY LANDSCAPE ABOVE LAWS GHAT RD AT UGARTE NAGAR KODAIKANAL 12 JAN 2020

Paraquat, glyphosate and me

Mark Antrobus

What happened?—I walked out of my house into the sunny morning and found the whole rich lush hillside down by the road turned brown and the short grass all turned yellow.

Coming down my hill to the main road this day early in January the life of the banks rising up beside Law's Ghat Road to Kodaikanal were all drooping and brown. The huge heart shaped leaves of *Alocasia* which I loved so much to see proudly on the verge up and down the hills proclaiming their ready green elephant-eared identity as they should, and good for holding the hillside banks ... were now looking miserable, yellowing and obviously slowly dying.

The once rich green turf on the other side of the road was dead. I would find, upon enquiry with local chocolate and vegetable shop owners who saw the operation for themselves, that the roadside had been devastated by a weed-killer patrol from the plains; they said they were from Batlagundu Highways Department who sprayed the poison brew from a big blue barrel by a compressor in the back of a pickup truck. No gloves, no goggles — according to witnesses — and spraying with an extended nozzle twenty feet up in the air through revetments into places where children play; the front of houses built behind the retaining walls across from the cemetery; a case of death at their door coming and going.

What was it? — the end of the world? Have we been visited by alien enemies of life? Yes; for it was *kalai kolli* — life-killer by any other name.¹

Only later after interviewing Khalil — my friend who sells me lettuce seed when he gets it from Japan — do I find that Khalil removed himself from the chemical pesticide business for reasons of health. He has what Michael Jackson said he has, leucoderma, which some think is attributed to pesticide contact. Khalil, with his leucoderma, is a sweet guy at heart, and has sat in that shop for years surrounded by the wafting smell of pesticides.

Khalil, tell me about the *kalai kolli* — did you sell glyphosate? — the weed-killer made famous recently in cases projected up to 10 billion dollars in claims against Monsanto ... just lately acquired by Bayer of Germany.

Bayer Aspirins we grew up with as a brand name to trust! And Monsanto, a household word for great reliable products whose TV ad in the eighties visualising a young married couple and their kids waltzing carefree through the trees with the Monsanto copy-line: — “Without chemicals, life itself would be impossible” — quite a flip on the reality.

Monsanto/Bayer is being sued by patients with cancer from the use of RoundUp, their flagship herbicide, accused of death and destruction wherever it goes and whatever it touches. The brand name? — is resonant of the last roundup, a cowboy-like idiom expressive of herding in the cattle from the wide open ranges — a metaphor for going to heaven, to the last roundup in the sky; certainly what Round-Up has in store for every boy and girl!² Not only does it kill pesky unsightly green weeds growing up through the grey cement in your patio, glyphosate brings on cancer through decimating the beneficial bacterial life in your gut while allowing the harmful bacteria to flourish.

Further along in the conversation I ask my seed

friend-merchant, Khalil, had he heard of paraquat?

“Yes!”— and he looked almost mystical saying — “I sold paraquat!”³ — but, looking downcast ... he ended by saying ... “now we do some other business altogether.”

Badri, who farms organic next to Attuvampatty chemical farmers, cried,—“Yes!”—he said, “my neighbour is an enthusiast⁵ who—when I asked him to stop ... by saying that weed-killer is dangerous to use—my neighbour pointed the sprayer at my face half joking, half not, and said: ‘we love our weed-killer!’”— “But he was the weed-killer so he loved



I thought of Khalil vending perhaps some good quality compost and other organic products; and could talk to him about this later.

“I stopped selling chemicals,” he said, “but plenty do, all throughout the villages, it is a big business.” Another friend who travels around Kodai managed to produce a list of the shops that do deal in this deadly poison.

Talking about all this with my friend Badri who farms completely organic nearby our little sanctuary, tells me that at his other plot across the valley, in a more densely farmed area out in the sun at Attuvampatty, they spray this weed-killer with great intensity. “I do not know what it is,” he says, “I never see the used packets.”

Glyphosate comes to mind, because of the lawsuits against it in America, but here in actuality the weed-killer of choice is just this — paraquat — something far more deadly as our seed merchant tells me, that same paraquat.

“The trouble with glyphosate,” he tells us, “is that you have to wait a week for full results: it is slower than paraquat where things die practically before your eyes — including people!”⁴

Paraquat in Asia is a favourite tool of suicide. This is widely documented in YouTube, but who is taking any notice?

himself!”—said Badri, managing a smile.⁶

Burning the earth — drying up wildlife, killing microbes meant to enrich the soil and our gut ... and then poison the very water that the chemical drains though.⁷

I think we need a mothers’ revolution, those who would protect their young — if the men cannot do it, the women will have to create a woman revolution in Asia, to protect the young, and to save the planet. It is obviously macho power at work here, the joy in scorched earth. We speak of Mother Nature for a reason. Why else would men make wars if they had not something burning and poisonous inside?

Paraquat shot to fame in 1978 when the US Government donated it to Mexico in the War on Drugs; sprayed marihuana fields, the illegal growers disappearing to later harvest and have it sent to America with care, the same poison America sent down — and it poisoned, often fatally, relatively innocent folks who smoked that ‘weed’ doused with weed killer. Paraquat became a serious issue in the House and Senate.⁸ Nonetheless, President Ronald Reagan authorised its use again against marijuana but this time in Georgia, USA, in 1983.

As a matter of fact, another deadly chemical, Agent Orange, was sprayed to defoliate the oaks in the Ozarks in Arkansas to facilitate timbering. Many people were affected, I know, I visited the Ozarks

in 1976 and heard first hand from residents accounts, of gathered firewood out of the woods in the beautiful hills, burning in the grate bright green. Will we not rest until we poison the world earth wide? Agent Orange, again, produced by Monsanto was used to defoliate trees for timber in Washington State too. The defoliant Agent Orange which contains dioxin negatively impacts human genetic health across generations, as it does the children of dioxin-exposed American servicemen who served in Vietnam.

A poisoned countryside — why? — and right here in Kodaikanal, another chemical Vietnam quietly being enacted inside and out of the marketplace.

Paraquat is now linked to a cause for Parkinson's disease, now spreading in India where, amongst other effects on the nervous disease, you begin to tremble uncontrollably. And since it is a chemical hazard in an ecologically sensitive zone, this is utterly insufferable.⁹

Furthermore, there is a myth and a scam perpetrated by the chemical companies that you cannot convert from chemical to organic with profit, the crop will be small. This is the number one canard. I can testify to this as we have converted washed out soil on several occasions, grown crops naturally on damaged fields, turned around the soil and made it clean, productive and green and full of joy. Many farmers — like Priya Vardesh working some eighty (80) acres down the hillside from us in Thandikudi —

three-day organic training programs at Vanagam near Dindigul in the plains below Kodaikanal.

Hence these controllable substances, like dioxin, glyphosate and paraquat represent a public health crisis taking place all over Asia — not just Kodaikanal where paraquat is now at this moment being sprayed onto potato plants at harvest: the agricultural fashion taught to gullible farmers and the Highways Department by a multinational company to defoliate the plant and have it 'harvest easily' — which means 'cheaper' — or to inexpensively defeat the 'visibility problem' on the roads, also without due diligence.

We require a ban on spraying of weed-killer on the highways, especially seeing that this was done near schools and residences, and we require a ban on paraquat sprayed potatoes! But what was more shocking was Badri's testimony that he witnessed paraquat sprayed on carrots greens too at harvest. I would now buy only carrots with their green tops and boycott potatoes not grown naturally or organically. That is the only smart thing to do. It was the potato farmers who cried foul on Nilgiri Collector Ms Innocent Divya for declaring she would phase out chemical farming there over three years. But the brainwash runs deep: we cannot live without chemicals, the twist on the 1980s TV ad that without chemicals life itself is impossible! The fact is that many great organic techniques have been developed in the past fifty years by pioneers like Rudolf Steiner in the West, Fukuoka in Japan and Nammalvar in Tamilnadu.



continue to demonstrate the advantages all around of organic methods of agriculture; the program of the late and great Nammalvar continues to enact

But it is true the Horticultural Department and Agricultural Colleges are pushing back if slowly but surely, at the chemicalization of our world. Recent-

ly, my friend Elango Kallanai spoke of growing organic paddy with the Agricultural College Madurai to eager reception. There is a transition going on, the Horticultural Department cautiously inching towards organic.

Meanwhile, this is a serious emergency. To top it all off, a great fuss is made in the Tamil Press about wintergreen oil, raids conducted on a Kodaikanal cottage industry¹⁰, while ignoring the fact that a suicide victim is five times more likely to die from mass industrial paraquat than from lowly wintergreen. Nothing in the news about paraquat — dead silence — and yet as the statistics from the RDO (Revenue Divisional Officer) show, out of thirty tragic cases of suicide mostly by farmer women in these hills, some five-sixths of the cases are by paraquat. Attack the cottage industries killers rather than the big time distributors—even from the United Kingdom! Now, although it has long placed a ban on paraquat use, UK felt morally okay to produce and export paraquat, this multidimensional assault on the environment to Asia.

What to do? A group from PHCC met the RDO to inform him of the roadside horror with captioned cautionary pictures — and we are awaiting a report from the DFO.¹¹ The authorities were quite receptive to our report of roadside spraying. They swore to take action to ban its use on the highways forthwith, but we have yet to see a written order.

The next problem with paraquat (and glyphosate) is open burning. Dry leaves and stalks poisoned ... are tinder for a potential toxic cloud over Kodaikanal; the Princess of the Hills poisoned on the ground and in the air! That's why we have called for an examination of the cause of the mass spraying of something that has dried up the beautiful heritage of the Hills, the lovely greenery that greets and refreshes the eye and the soul as you climb the Ghat.¹²

They were burning kalai kolli down the road from us, outside the Pentecostal Cemetery. We halted our journey to town long enough for Murugesh to photograph this little fire and the smoke turned direction and blew into my face, my eyes smouldered! I'd been paraquatted! — I've been glyphosated! And only God knows what's next. All this belongs to some morbid noir genre film or musical — like Beetlejuice, or Brainscan!

Can we do something about it in Kodaikanal and even all around Asia? — I do not know, let us push and see!

Footnote:

1. Considered paraquat more likely than glyphosate
2. Which is like some ironical tour of planet universe, turning out to be code from the twisted would-be brain of Dr Evil ... hey!—am I in a James Bond film?—what is going on here!?
3. And people use it for suicide, so i do not sell it anymore or any pesticides, he said
4. Some Nature buff must do a film noir, in slow motion, the death of a plant by human poisoning—the inverse of the death of a human by a plant or chemicals.
5. ic weed killer incarnate,
6. No doubt, but not enough, I said, not enough to wise up to what his macho self is telling him. Kill, kill, kill, it is such fun. Like arson, in my opinion, but invisible
7. It is obviously macho power here!
8. Since some of their kids could have probably done it.
9. All about a controllable substance and a public health hazard that is freely disseminated by companies after one thing, your soul
10. As being poisoners
11. BTW, RDO means Revenue Divisional Officer but not many people actually know this, rather he is the ardeeyo. The dee-eff-o is the District Forest Officer under the Wildlife Warden Chief.
12. Made dead by (1) the flippant order of a number cruncher, (2) the evil intents of the capitalist-monarchical-communist sphere to make moolah for someone out of whatsoever, regardless of the costs. Or both together converged upon (3) the gulls and gullibility of a ready public. Must we swallow everything!?



Conserving precious forest resources through selective cultivation: the case of bael

Hema Latha Nalla

The bael tree, *Aegle marmelos* L., is native to the Indian subcontinent and Southeast Asia. It is also known by other names: bili, bhel, Bengal Quince, Golden Apple, Japanese Bitter Orange, Stone Apple or Wood Apple. It is distributed through Tamil Nadu and Sri Lanka, Thailand and Malaysia and is considered to be sacred by Hindus.

Bael has many benefits and uses. It is used in medicines that cure tuberculosis, hepatitis, dysentery, constipation, peptic ulcer, worm infestation and stomach related problems. It is one of the few plants of which all the parts are used in Ayurvedic preparations used in countering different diseases. The fruit balances Kaph and Vata doshas, its roots improve digestion, the leaves are good to relieve pain, the stem is used in cardio-related problems and flowers employed in curing diarrhoea.

The Ayurvedic medicine Dasamoolarishta is a health tonic and pain reliever. It is prepared by the fermentation of herbs and contains 3-7% self-generating alcohol. The tonic comprises of 10 roots procured from bilva, agnimantha, shyonaka, patala, kashmari/gambhari, brihati, kantakari, shalaparni, prishnaparni and gokshura.

Brihat Panchamoola pacifies Vata Dosha and Kapha Dosha. The herbs in it improve both appetite and digestion and it is an integral part of the Dashmool formulation. It is used for the treatment of the diseases related to a digestive system and musculoskeletal system. Brihat Panchamoola contains the roots of five herbs: bilva (*Aegle marmelos*), agnimantha (*Premna integrifolia*), shyonaka (*Oroxylum indicum*), patala *Stereospermum suaveolens* and gambhari (*Gmelina arborea*), and added in equal proportions by weight.

Being one of the key ingredients of the above two prominent Ayurvedic medicines, along with many other medicinal applications and its religious significance, bael has got a tremendous demand from

different segments of Indian markets. During the last century, it has been sourced solely from the wild which has resulted in its drastic decline; this has led to an inadequate supply to meet current demands.

Kovel Foundation came up with a pilot project 3 years ago to address these demands. Three of the Brihat Panchamool species, bael, shyonaka and agnimantha were selected and raised in nurseries and their cultivation promoted in tribal lands. The idea was to reduce the pressure on the forest as well as to create a new livelihood option for the tribal farmers. Learning through this process, Kovel Foundation has up-scaled the pilot initiative: 50000 bael plants have now been planted in tribal lands and about 1,00,000 seedlings are available in the nurseries across the Andhra Pradesh, to be planted in a couple of months. This cultivation is specifically meant for sourcing juvenile roots as raw material for pharmaceutical industries.

Bael is a 2-year crop that grows well in red and rocky soils. Around 11,000 seedlings are required for planting in an acre, with a spacing of 1 X 1.5 ft between rows and 1 X 1 ft between plants.

Palepu Narayana, a farmer from Melachuru village in Chittoor district, took up bael plantation in one acre of his land; this land had remained uncultivated for lack of investment and water facility. He could take up bael as an inter-crop in the agro-forestry model for which he was nominally supported for land development and fruit plantation, and the supply of 6 months old bael seedlings free of cost. After two years Narayana harvested the crop and got a total of 500 kgs of wet juvenile root, which dried to 250 kgs. This was sold at Rs 100/kg that has earned Narayana Rs 25000/- gross income; the net profit amounted to Rs 15000/-.

Kovel Foundation is positive that this initiative would be a key in shifting the situation of harvesting medicinal plants from the wild alone. Also, as the crop is rain-fed, it can be grown on unused lands leaving the existing food crop fields undisturbed. It was found that promoting the cultivation of such species is easier when combined with agro-forestry as an inter-crop instead of a mono-crop. Putting all the reasons together, it raises the hope that we may be able to reduce the pressure on the forest in the long run.

Trees, Machines, and Snow in Idaho's High Desert

Alan Johnson

It is a truth universally acknowledged, that a foot in possession of a good snowshoe does not promise stability. Or at least, this truth dawns on me when the one strapped to my right foot, which until then had kept me atop the meter-high snow, sinks effortlessly below the surface. Another truth: it's possible to have one leg buried thigh-high while the other extends perpendicularly across the snowpack. My ski poles are now useless appendages. I must look like a one-legged extra-terrestrial.

But there's no one to look. Not even a bird or a rabbit in this canyon in the late afternoon, with the mountainsides shading the forest. My two companions, whose cross-country skis and versatility had taken them some thirty meters ahead of me on the trail, are nearly out of earshot. Woods muffle sounds, so I have to yell mightily before I'm rewarded. "Need help, Alan?" Well, yes, that would be nice.

Until this moment, I've been enjoying this beautiful trail that weaves among pine and fir trees. We've

with cooking ware, and a small stack of firewood. The toilet, a wooden box over a pit in a three-sided cabana, is ten meters from the yurt. Finding your way to this on a frigid night, sitting on the frozen throne—well, one tends to push that memory aside. But these details are not yet known to me as I battle the deep snow. I'm soon exhausted by my attempts to right myself, freeing one leg (the snowshoes have ripped off), only to have the other sink back in. Drops of sweat blur my glasses. With no way to spread mass, heavy with backpack and layers of clothing, blind, hamstrung, and frustrated, I finally call for assistance. The snow that had seemed



beautiful to me moments ago is now a menacing antagonist. This, I decide, is how I die: in a snowy forest, in the evening, not a soul—

"Okay," the voice says cheerily. It's Mike, the younger of my companions. He seems to have materialized before me.

"How—?" I ask in surprise. Here I am, in an epic struggle with nature's might, and he skis over to me in less than a minute. This fact will take time to sink in.

"Take your pack off and lay it flat on the snow," he says. This done, he tells me to raise myself once again—he helps pull—just enough sit on the pack. And voilà! I'm no longer sinking. Mike helps me re-attach the snowshoes, plant them on firmer snow, and, just like that, I'm vertical again. Mike leads the way, and in another ten minutes I hear Tom, our other colleague, hallo the yurt like an old friend.

Unfortunately for me, the last twenty meters are straight up. I can see the tent above me, tantalizing, as I plant each ponderous foot in front of the other, thoroughly spent. I taste the salt of my sweat. When I reach the yurt, all I can do is plop into a wooden chair. Meanwhile, Tom and Mike merrily go about lighting the stove, chopping more wood, melting snow for cooking and drinking. An hour goes by before I'm able to rise, as from the dead, to shed my soaking clothes, which I hang to dry on the twine Tom has brought for this purpose. Fortified with surprisingly good pasta, dried fruit, and chocolate, I



made good progress. From the snow-packed parking lot, we've traversed the three miles of gently-ascending road groomed for snowmobiles, my companions duck-walking parts of it on their skis, I plodding along steadily. We've found the nearly-hidden trail that breaks off into the surrounding forest for the final half-mile.

We are heading to a yurt, the Mongolian-style circular tent that has become popular in some campgrounds. Of the six that our university's Outdoor Program sets up each winter, ours, the Inman Yurt, is the smallest. Even so, its three bunkbeds comfortably sleep six, with room to spare in the center for table and chairs, iron wood-burning stove, shelves



can finally enjoy a comfortably snug evening in the deep and frozen woods. I try not to think of the inevitable night-run to the cabana.

Up before dawn, Tom whips up pancakes and coffee. A crescent moon gilds the clear sky. Packs re-filled, including with bagged trash—the rule “pack it in, pack it out” strictly applies—we head out. Going down instead of up is, I decide, my preferred *modus operandi*. The sun hasn’t yet crested the slopes in the valley, but the snow-covered trees and plants glow in the clear air. We hear the gurgle of a stream, frozen over but alive beneath. Rabbit, deer and coyote tracks dimple the snow to and from the stream. I hear—and see—my breaths.

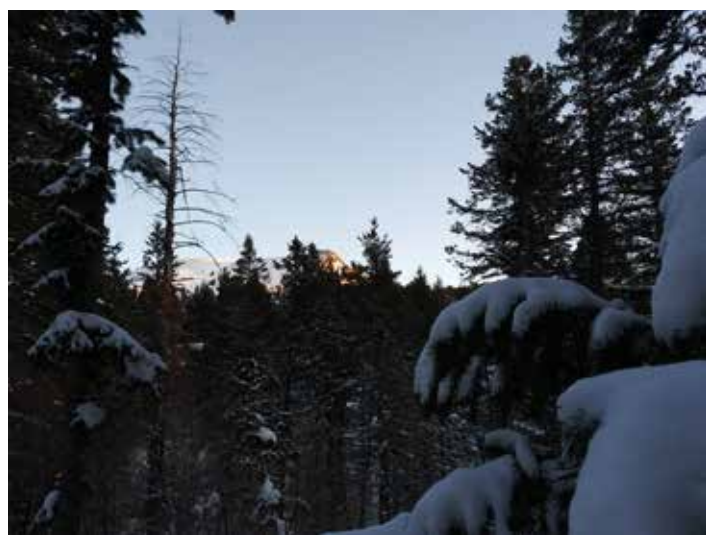
Then a low hum: a machine of some kind. Snarling now, somewhere ahead of me on the groomed road we’ve just reached—there, some thirty meters ahead, exploding out of the woods. The driver is all dark, from helmet to boots: a cyborgian portent, but of what, I’m not sure. The machine spits out chunks of earthy snow, each one branded by its crisscrossed tracks. It leaves a dark cloud in its wake, like a monstrous belch. The stench of gasoline hangs over the road.

I shouldn’t be surprised. We encountered many of them the day before, on our hike in. The drivers pass with a friendly wave. We are the only ones on foot. An oddity to them, for whom machines are extensions of themselves, autogenic and ravenous for grounds to range over, bite into, vomit up. More roads in the name of recreation, that most ironic of words. To re-create is to renew and restore, but today usually means reduce. Reduce air and water and trees, reduce bodily exertion, reduce awareness.

As destructive as these machines are, things could be worse. Inman Canyon and its forest are, at least for now, protected from further development. Else-

where in the region, the story changes. Southern Idaho, with northern Nevada and southeastern Oregon, is High Desert. Technically, this swathe of the state harbors the Great Basin Desert, which like its neighbor is a cold desert, the only one of its kind in the country. Like other parts of the western U.S., the Great Basin fosters pinyon-juniper, old-growth trees that can live to a thousand years and are perfectly adapted to the arid climate. They are, writes Christopher Ketcham in an opinion piece, vital to the ecosystem, attracting a range of birds, providing pine nuts for Native peoples, and preventing erosion.

But now, on the pretext of preventing forest fires and safeguarding sage grouse, a different machine is intruding. This, Ketcham tells us, is the Bull Hog, a “bulldozer with a spinning bladed cylinder on the front end” that “knocks down and chews up everything in its path.” Within sixty minutes, the hungry beast gobbles up an acre of pinyon-juniper trees. The defoliated land is suitable for just one thing, which is the real aim of the policy: forage for cows. The words of Katie Fite, a biologist with Idaho non-profit WildLands Defense, are as chilling as the desert air: without trees to trap moisture and grip the earth, the rocky soil dries out and is flung wide by wind. The government’s Bureau of Land Management—“Bureau of Livestock and Mining,” critics call it—thus ensures the emergence of grasses and sage brush. Though a meagre replacement for juniper-pinyon, this new growth feeds cattle, satisfying the ranchers who own them. Ketchum again: “The mentality, [Fite] tells me, is ‘kill, kill, kill’ — CO2 absorbing trees, birds, native habitat.”



When we reach our car at the Inman Canyon lot, I no longer regard my snowshoes with skepticism. Awkward appendages they may be, but they’ve taken me in and out of the forest. My one mishap was, my friends tell me, likely due to a “tree well,” a hollow space in seemingly packed snow near the base of a tree that forms because tree branches prevent heavy snowfall. Step onto this, and—well, see above. I can’t blame snowshoes, or trees, or snow, not even myself. In a world filled with judgments, this knowledge is a relief.

As we drive out, snowmobilers come and go, waving at us if their machines are the most natural thing in the world.

Invasive species in India – efforts, impacts and actions

Anita Varghese

“Why are we making such a big thing about invasive species – we have accepted foreigners and guests into our landscape – why don’t we just learn to live with these plants also then?” – asked an Adivasi youth from Sathyamangalam. This would have been an interesting conversation to have, despite the fact that this comment came at the end of a

to manage them: this attitude may only enable us to study the consequences! The final question was: ‘are non-native species harmful?’ to which the philosopher in the group had some new insights. A lot of the language used to talk about invasive species is borrowed from war or cancer treatment. This is deliberate and hopes to impact policy and politics. Though this is necessary, within the scientific study of invasion biology it fails to show clear evidence to declare any species as a degrader, a destroyer, or harmful and polluting, words which are commonly used to describe the invasive species.



five day field course with experts, on ‘invasive species’ and how to manage them. The young man’s dilemma is reflected by ecologists, forest users and manager’s ideas about invasive species, often leading to confusion on the big question of ‘should they be managed or not?’.

In it’s National Biodiversity target #4 India has included the Aichi target 9, which seeks to identify invasive alien species and how they were introduced, to develop strategies to manage priority species by 2020. With this commitment India has stepped up efforts country wide to counter challenges posed by invasive species which include plant, animal, fungi and micro-organisms. In this article I bring together snippets about efforts made thus far. These examples from across the country are worth thinking about.

In a 2007 article of the Conservation Magazine, four leading thinkers in the field of invasion biology shared their points of view.¹ A significant response to the question ‘do biological invasions decrease biological diversity?’ was that while overall biodiversity, in terms of numbers, may remain stable the endemic species that are lost are lost for ever. To another question: ‘do we need to manage them’, the opinions suggested that it would be unwise to sit back and wait for enough evidence before beginning management. The study of invasive species started only since the 1980’s and, being a new science, it doesn’t mean we cannot start somewhere

The term ‘invasive alien species’ which is globally recognised, is also used in the Indian context. ‘Alien’ implies species that have been introduced, even though several introduced species are now an important part of our diets – potatoes, tomatoes, tamarind, chilli – and cannot be overlooked. Some introduced species have resulted in ecological and economic damage and by spreading rapidly have invaded natural environments. Invasive species are capable of causing extinctions of native plants and animals, reducing biodiversity, competing with native organisms for limited resources, and altering habitats. They affect livelihoods when NTFP species in the wild are impacted, when natural lakes are invaded, or when they overtake agricultural lands that may require extensive weeding operations. Invasive species that get a lot of media coverage in India are *Lantana camara*, *Hyacinth spp*, *Prosopis juliflora*, *Chromolaena odorata* etc., all common in our landscapes with many local names over the decades. The Zoological Survey of India lists approximately 157 species as invasives which include snails, fishes, bugs etc. The National Biodiversity Authority has published a list in which around 62 plants, both terrestrial and aquatic, are declared as invasives, which have spread in all biogeographic regions of the Indian subcontinent. While we may have documented the invasive species we are yet to know the number of native species that are impacted by these invasions and whether any extinction of endemics have occurred in regions of high invasion. Hiremath and Krishnan mention² that

economic losses in forestry and agriculture to the tune of USD 91 billion a year could be attributed to invasive species. The authors also note that this figure does not take into account the costs incurred for the management and control of the problem.

How does India manage its invasive species? Since the beginning of this century efforts there have been ongoing efforts by the ICFRE, MoEFCC, NTCA to document, manage and study the problem. Even before this Indian laws on imports of agriculture and wild produce paid attention to invasive species – either through the quarantine laws, livestock import laws, the biodiversity act etc. However, as pointed out by Hiremath and Krishnan, there is no single nodal agency responsible for the documentation and management protocols of the invasive species. It is therefore difficult to even understand what is happening to our fisheries (marine and freshwater), agriculture, soils and forests because of introduced species.

The Nilgiris is a region of the Western Ghats in an altitudinal range between from 2600 masl and 100 masl. In the higher elevations the indigenous Toda people have watched the *Cestrum* spp. take over the undergrowth in their Shola forests, and their grasslands overrun by *Acacia* trees, making it difficult for them to continue their pastoral practises. In the mid elevations the Irula people are reluctant to enter the dry forests, a mainstay of their lives, because *Lantana* has overtaken the understorey: they fear these forests due to the low visibility, as elephants and other animals move about these overgrown thickets. At lower elevations the Irula people of the valley find their agricultural fallows taken over by *Eupatorium*, making it impossible to begin the seasonal cultivation of crops in time, as much labour is required to clear the land.



Through the lives of the indigenous peoples we have seen the changes to the forests and grass-

lands due to the invasion of plants that were introduced 200 years ago. However, we know little of how these changes are from the point of view of



insects, animals, fishes, trees, shrubs and grasses, and how they compete with invasive species. We see that when the *Lantana* flowers butterflies forage on the nectar, that bears feed on the fruit, and people earn a livelihood by making handicraft from the woody stems. Does this mean that we are ready to live with this species, now that it is naturalised and part of our ecosystem? Do we not need to understand how many native or endemic plant seedlings were prevented from growing when the *Lantana* spreads?

We have a long way to go before we can say that the invasive species are welcome, ‘my home is your home’ or ‘athithi devo bhava’.

Footnote:

- 1.<http://www.auburn.edu/academic/classes/biol/5090/boyd/AlienSpeciesDebate.pdf>
- 2.<https://thewire.in/environment/invasive-species-prosopis-lantana>