

#FOREST CONSERVATION

Biodiversity Boost

The forest carbon potential has been a highly controversial topic



Natural forest recovery could capture approximately 226 gigatonnes of carbon, but only if we also reduce greenhouse gas emissions, a new study shows. The study highlights the critical importance of forest conservation, restoration, and sustainable management in moving towards international climate and biodiversity targets.

The researchers stress that this potential can be achieved by incentivizing community-driven efforts to promote biodiversity.

The forest carbon potential has been a highly controversial topic. Four years ago, a study published in the journal 'Science' found that the restoration of forests could capture over 200 gigatonnes (Gt) of carbon, which could drawdown approximately 30% of excess anthropogenic carbon.

While this study elevated a discussion about the role of nature in fighting climate change it also raised concerns around the adverse environmental impacts of mass tree plantations, carbon offsetting schemes and greenwashing. While some scientific studies have supported the scale of this finding, others argued that this forest carbon estimate could be up to 4 or 5 times too high.

To address this controversial topic, researchers led by the Crowther Lab at ETH Zurich joined forces to build an integrated assessment using a comprehensive range of approaches, including vast ground-sourced data and satellite datasets.

Forest Carbon Capture

Due to ongoing deforestation, the total amount of carbon stored in forests is ~328 Gt below its natural state.

Of course, much of this land is used for extensive human development including urban and agricultural land. However, outside of those areas, researchers found that forests could capture approximately 226 Gt in regions with a low human footprint, if they were allowed to recover. Approximately 61% of this potential can be achieved by protecting existing forests, so that they can recover to maturity. The remaining 39% can be achieved by reconnecting fragmented forest landscapes through sustainable ecosystem management and restoration.

"Most of the world's forests are highly degraded. In fact, many people have never been in one of the few



Filth Foraging Wildlife



Credit: Agriswar Ghoshal

• Cara Tejpal

In a small island on River Ganga, in the Malda district of West Bengal, a golden jackal licks the remains of a styrofoam plate, casually discarded by picnickers.

In the absence of efficient waste management systems, India is grappling with a mammoth garbage problem. Thousands of tonnes of untreated and unsegregated waste pollute the country's land, water and air while serving as toxic foraging grounds for a plethora of wild animals.

To highlight this travesty, I and my colleague at the Sanctuary Nature Foundation, Prachi Galange, conceptualised an Instagram project titled '#InOurFilth'. The project invites photographers from across India to submit images that illustrate the impact of garbage on nation's wild species. We then, curate the submissions and post an image each week on the Instagram handle of Sanctuary Nature Foundation.

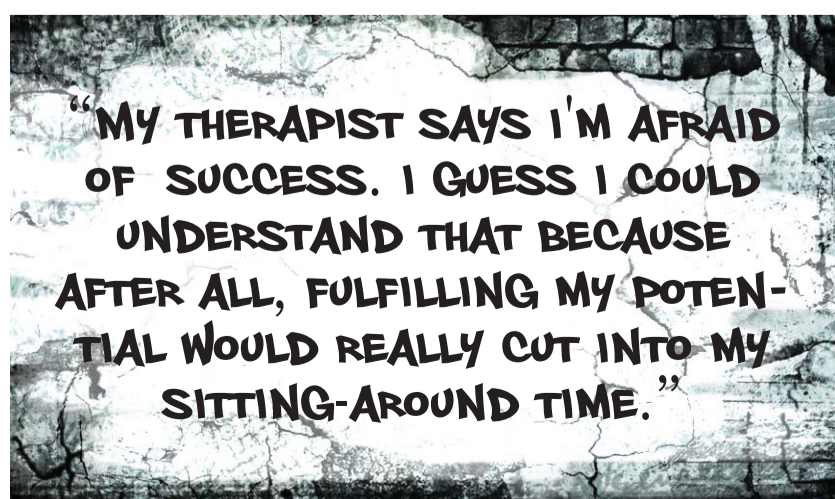
The project was born in the photo library of the Foundation. Galange, who works as the photo editor and naturalist at the Foundation, and I noticed an alarming number of images that showcase wild animals in heavily polluted surroundings. It was then that we thought of '#InOurFilth' as a public awareness campaign to draw the link between our everyday consumption and the condition of wild animals that are forced to share space with us.

"Restoration means directing the flow of wealth towards millions of local communities, indigenous populations and farmers, who promote biodiversity across the globe. Only when healthy biodiversity is the preferred choice for local communities will we get long-term carbon capture as a by-product."

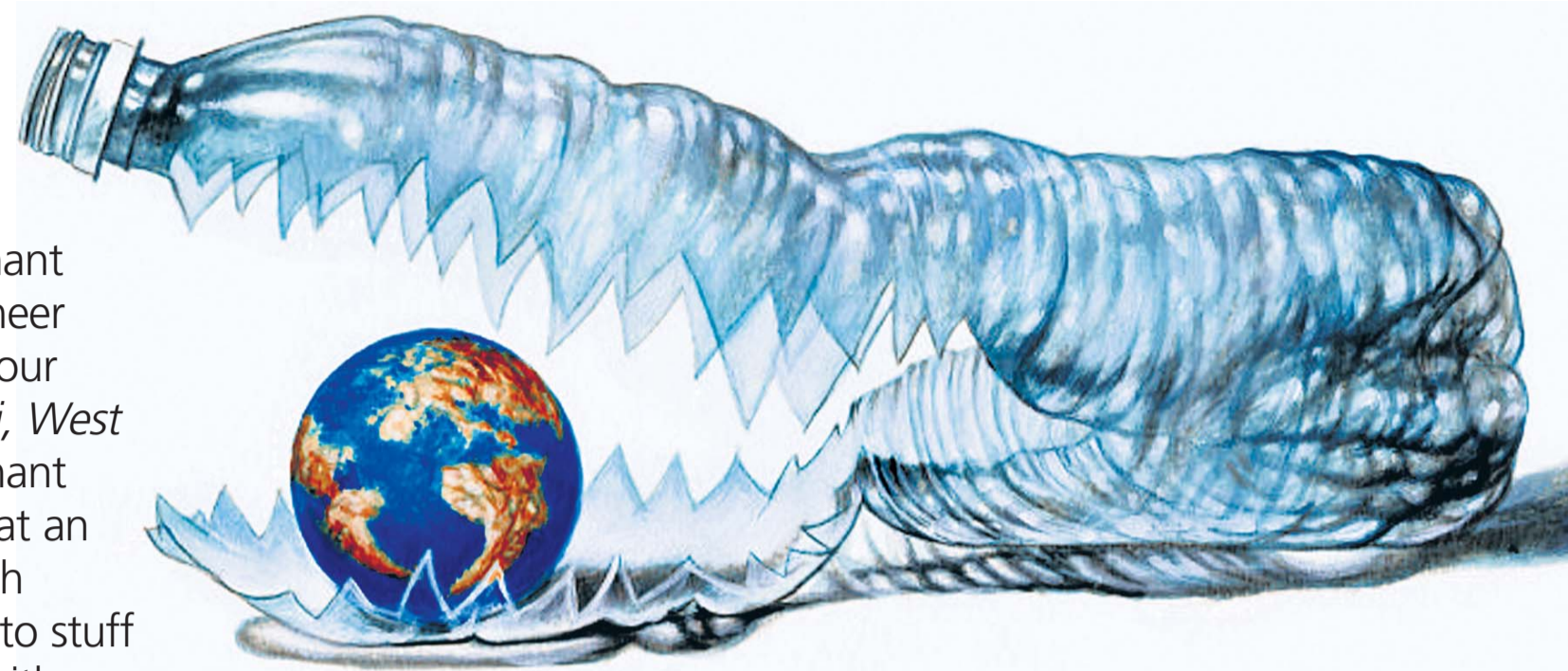
The researchers conclude that ecologically responsible forest restoration does not include the conversion of other ecosystems that would not naturally contain forests.

This study brings to light the critical importance of natural, diverse forests in contributing to 30% of carbon drawdown potential. However, forests cannot be a substitute for cutting fossil fuel emissions. If emissions continue to rise, the study warns, then on-going droughts, fires and warming will threaten forests and limit their ability to absorb carbon.

THE WALL



We adore our elephant god, but through sheer neglect, we poison our elephants. In *Siliguri, West Bengal*, a wild elephant scavenges for food at an unauthorised rubbish heap. She prepares to stuff a plastic bag filled with vegetable peels into her mouth. Once ingested, the plastic can wreak havoc on its body and potentially lead to death. According to *Elephant Family*, a UK-based NGO, nine of the 13 countries that are home to *Asian elephants*, are amongst the world's worst managers of plastic waste.



Credit: Soumen Bakshi

Here are some images of wildlife #InOurFilth.

Royal Mess



Credit: Babat Dakra

In the buffer zone of the *Tadoba Andhari Tiger Reserve*, a tiger cub picks up a plastic gunny bag. With several tiger reserves in India, boasting healthy tiger populations, the question that arises is, where will all of them go? Many tigers have begun foraging into human-dominated landscapes or degraded and insufficiently protected forests, where they must contend with the pressures of sharing space with human communities. This can lead to all manner of conflicts, and, as in this case, *Plastic (P) lover*, the beautiful, black-masked eye of a *little ringed plover* is pictured in contrast to a plastic water bottle, littered on the Ajay riverbed. By some estimates, a million plastic beverage bottles are sold globally, every minute. The majority of these are never recycled and will long outlive the person who purchased them.

Pecking Order

In the rushed and dusty city of *J. Gurugram*, two forlorn *yellow-wattled lapwings* forage in a pile of rubbish. These birds are ground-nesters and it is difficult to imagine the life they have been forced into, by human overconsumption and neglect.



Credit: Anirban Roy Chowdhury

#NO MORE WILD

Single-use Sins



Credit: Mohan G.

In *Valparai*, Tamil Nadu, a *lion-tailed macaque* rips into a single-use packet filled with curry. This incredible, distinctive species is endemic to small pockets of the *Western Ghats*. It dwells in the rainforest and primary eats, or should eat, fruit. But with forests getting degraded and fragmented, and with garbage piling up, it is being forced to change its habits. Researchers say that these *macaques* are spending more time on the ground and having negative interactions with humans, including raiding homes and foraging for human food.

Marmot Kask

In remote *Ladakh*, the face of a *Himalayan marmot* is obscured as it gathers nesting material that includes discarded plastic bags. A dream destination for most travel enthusiasts, *Ladakh* has suffered gravely because of unregulated tourism. Just a kilometre from Leh city lies India's *highest landfill*, where an estimated *30,000 plastic bottles* get dumped in summer months alone.



Credit: Santosh Nimbaikar.

Trashing Tigers
In Maharashtra's *Tipeshwar Wildlife Sanctuary*, a tiger cub picks up a carelessly thrown plastic bottle. Unregulated and unmonitored tourism has placed an enormous strain on natural resources. Tourists, visiting India's national parks and sanctuaries, don't realise that they can lighten their footprint, just by refusing eco-conscious homestays and resorts.

Garbage Ghats



Credit: Tharri JE

This gorgeous portrait of the elusive *brown palm civet* or *Jerdon's palm civet* is marred by its awful surroundings. It was found foraging through rubbish at an unauthorised rubbish heap. She prepares to stuff a plastic bag filled with vegetable peels into her mouth. Once ingested, the plastic can wreak havoc on its body and potentially lead to death. According to *Elephant Family*, a UK-based NGO, nine of the 13 countries that are home to *Asian elephants*, are amongst the world's worst managers of plastic waste.

Mouse House

In *Kavrem, Goa*, an adorable *long-tailed tree mouse* roosts inside a discarded polythene packet that has been caught on a bush. While this plastic palace may momentarily shield the mouse from the elements, it is a dangerous home. It could suffocate or poison its resident and eventually, go on to pollute land or water.



Credit: Omkar Dharwadkar.

Poisoned Waters
A checkered keelback catches a meal in a filthy waterbody in *Dharwad, Karnataka*. That unmissable plastic bottle is just the tip of the iceberg. According to Niti Aayog, the government's policy think tank, 70% of India's water is contaminated, with 600 million people facing high to extreme water stress.

BABY BLUES



Lone Wolf



Credit: Rishikesh Lande.

"Now, this is the law of the jungle, as old and as true as the sky/And the wolf that shall keep it, may prosper, but the wolf that shall break it, must die...The jackal may follow the tiger, but, cub, when thy whiskers are grown/Remember the wolf is a hunter - go forth and get food of thine own." recites the wolf pack in Rudyard Kipling's classic, *'The Jungle Book'*. But in a grassland in *Ahmednagar, Maharashtra*, the law of the jungle lies shattered. This handsome male wolf was photographed as it nosed through the garbage at a dumping ground, tearing open plastic bags and gingerly stepping over the rotting, leaking refuse.

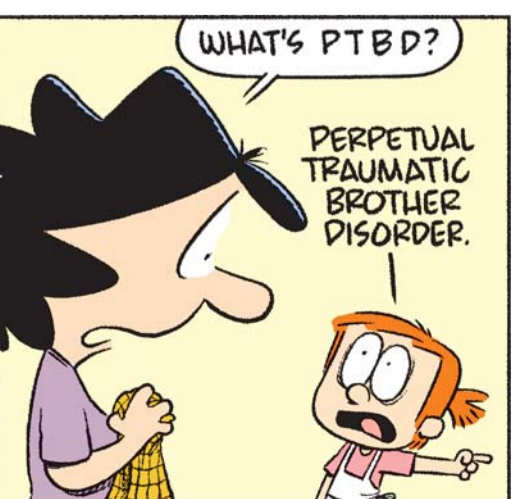
Poisoned Waters



Credit: Vaidehi Gunjal.

In the vast expanse of the *Little Rann of Kutch*, a *Eurasian Hobby* perches upon a lone slipper. While the *Little Rann* still teems with wildlife, it is increasingly threatened by unnatural changes in upstream hydrology, pressure from the salt industry and the effects of tourism.

ZITS



Daily Diner



Credit: Tirth Vashnar.

For small omnivorous mammals, such as the *Indian Treeshrew*, a garbage dump can serve as an all-you-can-eat buffet. They feed on food scraps, including bits of fruits, vegetables and cooked items as well as on the plethora of insects that are attracted to the site. The availability of food in the dump caused this otherwise timid creature to leave the safety of its natural habitat and even tolerate the presence of other individuals. Proximity to humans can be dangerous for wildlife. They can be attacked by stray dogs or cats and the garbage often contains unsuitable or contaminated foods, not to mention plastic, as evident from the picture.

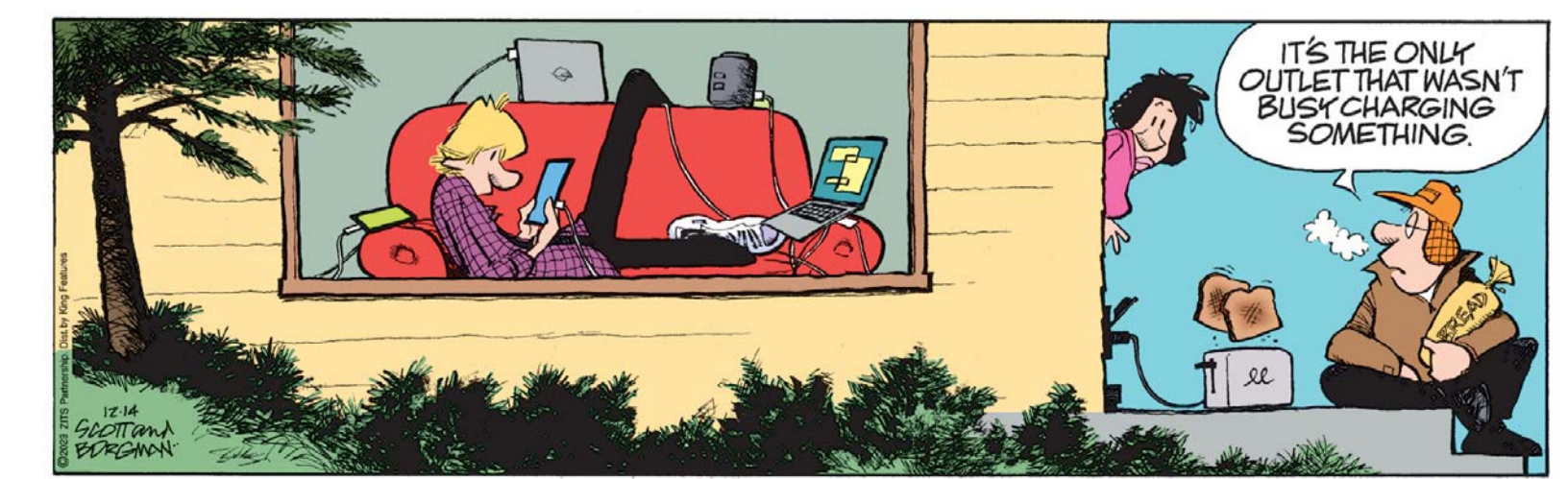
Falcon Footwear



Credit: Suketkumar Purohit.

In the vast expanse of the *Little Rann of Kutch*, a *Eurasian Hobby* perches upon a lone slipper. While the *Little Rann* still teems with wildlife, it is increasingly threatened by unnatural changes in upstream hydrology, pressure from the salt industry and the effects of tourism.

ZITS



International Brainteaser Month

People always talk about physical stimulation and keeping your body healthy, but where's the brain gym to help keep your wits sharp? Most people don't realize that engaging in mental stimulation is just as important as keeping your body in shape, but that's what International Brainteaser Month hopes to change. Every one loves a good riddle. Brain teasers are an excellent way to keep our minds sharp and focused. There are plenty of great puzzles out there to challenge every level of thinking. For daily teasers, there are several mobile apps that offer daily reminders and challenges.

#PARENTING

Here's Why Toddlers Love To Pretend Clean

Here's what experts have to say about the appeal of *cleaning* to toddlers

Parents know how much toddlers love to play pretend clean. We see it in their own homes as our little ones waddle around from room to room, sweeping up imaginary crumbs, mopping floors that could use an actual scrub-down and wiping down any surface that they can reach with whatever fabric, they can get their hands on, be it an actual cleaning cloth or a dirty sock from the hamper.

As soon as your baby outgrows infancy there's a high chance that this six-piece wooden toy set will make its way into your home. But what is it about playing "cleaning" (different from clean-up) that is so thrilling for young kids?

Here's what experts have to say about the appeal of cleaning to toddlers, how it benefits them developmentally and how parents can make this type of pretend play the most enriching for their child.

Reason 1: It's in their nature to imitate

Playing copycat is an integral part of development. The most meaningful, significant or critical reason as to why toddlers engage in so much cleaning and other household behaviours is because kids, just naturally, are imitators. It's how they learn. We're social beings. We learn foundational linguistic and motor skills, like speaking and jumping, through observing other people, doing it.

Reason 2: It makes them feel good

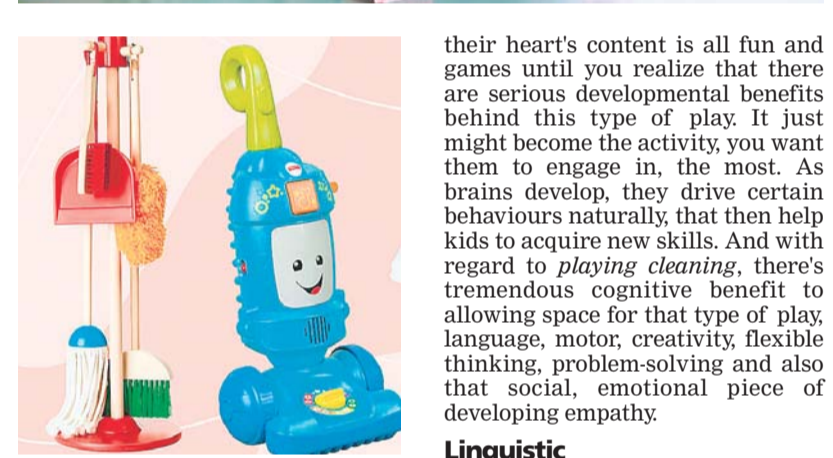
Perhaps there's something about playing with purposeful items, as opposed to toys that are simply designed for entertainment, that accelerates their sense of independence. Realistic, hands-on toys let kids explore the world around them, and help them connect with others. Researchers in *paediatric development* showed that kids undergo a huge transition between ages 2 and 3, when they start to explore their world and develop a sense of autonomy. Taking on grown-up roles and responsibilities, like pretending to do chores and imitating the behaviours of their caregivers, allow kids to model independence, which builds

Reason 3: The accessibility

One theory as to why toddlers are so drawn to cleaning (more than other imitative tasks that they could be performing) is that there's a lot of cleaning, naturally and actively happening around them and thus, they have more opportunities to observe it. Think about it! Caregivers are generally most paranoid about germs for the younger child is constantly tidying, mopping, and wiping surfaces. It makes sense that if babies and toddlers have an innate sense to imitate the people around them, once they are physically able to, they will want to.

Developmental Benefits Of Playing Pretend Cleaning

Letting your child pretend clean to



self-esteem and confidence.

Essentially, imitation is the foundation for language and communication, giving us a glimpse into what's happening in a toddler's brain, when imitating. There's actually neural circuitry (mirror neurons in the brain) that drive imitative behaviour because of how it supports the development of language and communication. Both, verbal and non-verbal forms of communication, really start to be developed through imitation and in the context of a relationship where there's a lot of back and forth. And it's reinforced through the parent responding to what really is first in imitative behaviour.

Social

"To a newborn, they and their caregivers are one entity. It's not until they move through infancy and into toddlerhood that children increasingly see themselves as beings separate from their caregivers," Phillips explains. Once this realization starts to manifest, it's then that they start to observe other people's behaviours and then, try on those behaviours. This is what lays the foundation for developing empathy.

Physical

The most obvious benefit of this type of play is probably the *fine and motor skills benefits*. When you're sweeping, you're moving your body in a different way than you do, naturally. So, there's also a lot of physical development. Same for dusting, using a spray bottle, which happens to be something that my toddler actually does during occupational therapy sessions. Each of these actions utilize and exercise different muscle groups to build strength and coordination.

By Jerry Scott & Jim Borgman