

THE GREEN ARCHIVE

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TIGER REINTRODUCTION IN ACTION!



Sneha Singh

B.Sc. Forestry III Year

Recently an incredible moment has been captured in Rajaji Tiger Reserve when two tigers (one male and one female) were released into the reserve as part of the tiger recovery plan for the area. These two tigers were received from the Corbett Tiger Reserve to boost the tiger population in the western part of the reserve.

Uttarakhand forest department has lead this project in collaboration with WWF India, The National tiger conservation Authority and Wildlife Institute of India (WII). This translocation project aims at reestablishing a breeding population of the big cats in Rajaji.

Rajaji Tiger Reserve, Uttarakhand is spread over 557sq km, out of which more than 60 percent of the reserve comes under the western part. Although

the reserve is having a total of 37 tigers but the traffic corridor between the eastern and western portion of the reserve makes it difficult for the tigers to migrate. The photographic evidence shows the presence of only two tigresses in the western portion with no sign of breeding since 2006. Therefore the translocation of tigers was considered as an imperative step towards population recovery. But in order to achieve long-term success, further actions will be required such as increasing protection and re-establishing connectivity with the eastern portion of Rajaji through functional corridors.

This translocation project consists a total of five tigers that are initially scheduled to be relocated from Jim Corbett to Rajaji Tiger Reserve. Before releasing, the animals are first tranquilized and radio-collared for their regular monitoring. This helps the conservationists and

forest managers to understand the range, territorial dynamics, predatory behavior, and ecology of these individuals.

Over the last ten years, WWF India has been very instrumental and has worked firmly with the National Tiger Conservation Authority, Uttarakhand forest department, and wildlife institute of India. WWF India's team has been actively involved in supporting tiger recovery in Rajaji over a long period of time and its Terai Arc Landscape team has also been assisting efforts in tiger monitoring in Corbett Tiger Reserve along with their safe and protected translocation to Rajaji.

Positively, this translocation will pave a way for population recovery and conservation in Rajaji. The efforts of conservationists, officials, and the staff will bear fruit when a feasible population thrives in western Rajaji.

EDITOR'S DESK

The first month of 2021 kicked off with fair optimism and high hopes. As the syllabus concludes, classes end and the dates of semester examinations keep getting tangled in blurred uncertainties, the academic calendar for the first month of the year went blank. But here at DBS, we follow the philosophy that every day wasted is an opportunity lost.

It was fairly evident that online teaching, despite being practiced with utmost effort, seemed to fall short in providing students with practical knowledge, especially in fields of Agriculture and Forestry. To bridge this gap and make every day count, our Principal Dr. I. J. Gulati introduced Winter Live Projects, an initiative which aimed to engage students in research-based learning. Each student was allowed to pick five preferences from a plethora of research topics, out of which they were allotted one, and were assigned a mentor faculty to whom they could turn to for assistance. The project topics were designed as such to cover practical and literary aspects, both of which are critical in real-life applications.

Not only will this initiative help students to broaden their proficiency in their chosen fields, but will also aggrandize their resume along with a plentiful of other benefits. This valuable opportunity would also provide supplementary marks in the internal assessment, which would help to compensate for the marks which were unfortunately lost due to a paradigm shift in the mode of examination.

Aside from the winter projects, students were still open to expand the horizons of their knowledge by value added certificate programs through



Coursera and EdX courses, and get their doubts cleared in tutorial classes.

A college-wide debate was also conducted on one of the most heated topics of the month, regarding the latest privacy policy of Whatsapp and where does it leave its users, moderated by the Chairman Mr. Mohit Aggarwal himself. Needless to mention, this event also managed to gather avid participation of students from various departments.

The fresher year of Agriculture

and Forestry received their own share of pleasant news, with the college finally opening for them from February, although theory classes would still continue online.

January, by and large, turned out to be a productive month for the college, and contained just the right amount of positivity we need as life in DBS resuscitates.

Manas Shukla
Editor-In-Chief

ENCOURAGING SUSTAINABILITY WITH THE DFO OF MUSSOORIE



Manas Shukla

B.Sc. Forestry III Year

We got an amazing opportunity to interact with an esteemed personality, the Divisional Forest Officer of Mussoorie, Mrs. Kahkashan Naseem. She is widely known as a woman of intellect, persistence and endurance. She has served as the DFO of Mussoorie for more than three years, and has provided an enormous amount of benefit for the people and ecology of Mussoorie. We took the chance to get insightful knowledge and future prospects of forestry from a woman of her erudition. Here is a glimpse of the conversation with her:

With respect to Forestry practices, India lags far behind the Western

countries. What do you think should be done to improve and encourage forestry education throughout the country?

Instead of creating a separate green brigade, green initiatives should be incorporated in the curriculum of all streams. For example, if the engineering stream imparts environmental education, that will help the nation to progress towards sustainable architecture, by which we can build our society in harmony with nature. Similarly, all streams would have their own contribution in the common goal of sustainable development. Therefore, in my opinion, I don't think that we should create a brigade of forestry students. Every academic stream should progress its education keeping the green aspects in mind.

Forestry is a diverse field in itself, and comprises people from a variety of academic backgrounds. Since you are from a non-forestry background yourself, how did your career reach here?

I grew up in Eastern U.P., at my Nana Ji's place. There was a pond, a small forest, birds, foxes, snakes and numerous other creatures, so the greenery was embedded in us. That led me to pursue an MSc in Botany, after which people encouraged me to go for public administration, psychology, etc. But I knew from the heart that I could clear IFS, even though the PCS was an easier option. So, I made IFS my goal. I opted U.P. as my first priority as it was my home state, my second priority was Madhya Pradesh because of its high green cover and the powerful forest department, and my

third priority was Uttarakhand because of the greenery and especially the people. When I inquired about the people here, I found out that they are humble, honest and straightforward. Most important of all, the people here respect women. So, if a woman wants to work here, she can get the best work environment.

Divisional Forest Officers, such as yourself, have immense responsibilities on their backs - they have to look after the conservation of forests, management of forests and improve the livelihood of rural people at the same time. How do you manage to handle these tasks?

First of all, it's the energy given by the god. Then it's the intentions we have in the back of our minds to serve the people and work for the good of the rural population. It's not that we are any special, but if you have passion in any work you do, you'll always go ahead.

People mostly talk about the benefits of becoming a forest officer, but people often overlook the struggles that one has to go through in order to achieve that position. What hurdles did you have to overcome to reach at this stage of your career?

As I belong to a Muslim community from Eastern Uttar Pradesh, I have often seen this backward mindset that women should not work outside of home. Thankfully, my family was progressive and I had quite a lot of support from my father and elder brother. They were always there with me through all my struggles, they gave financial, academic, moral and basically all kinds of support. I think that if a woman is looking to go out for her career, the support from the family, especially the male members of the family, is of utmost importance.

Since you are a UPSC aspirant yourself, what advice would you give to the youngsters looking forward to having careers in forestry, in both?

I believe smart study is the only solution. Once you have chosen your field, you need to give your attention to all its aspects and study everything you can. Go for understanding rather than memorizing. Smart study is the intellectual way to go.

Scientific breakthroughs have now become a common phenomenon in Forestry. Which new forestry-related fields do you expect to emerge in the upcoming years which would bring a wide scope for students?

For new fields in India, many

institutional changes are required. We Indians have been passing almost the same education to people for decades, and there is barely 5-10% of new education. Therefore, to compete with the rest of the world, we need to reconsider, reevaluate and redesign our curriculum. The private institutions of our country are studying the market, analysing the needs of the market and redesigning the curriculum accordingly. They are opening broad scopes for new students. Government institutions should follow and make their curriculum flexible. That is how we will get to see advancements.

Some people say that the world is doomed, and we have destroyed nature to the point of no return, so there is no use of conservation practices now. What is your philosophy on that?

I don't agree with that. I believe nature is a very dynamic entity. No matter what we do, nature will always recreate herself. For example, the mining areas of Uttarakhand, especially in Mussoorie and Dehradun, were completely devastated due to human activities. But after humans left them, the vegetation started to grow again. Nature can always revitalize herself; we just have to leave her to it.

WHEN CENTRE MEETS THE FARMER UNIONS

Abantika Das

B.Sc. Agriculture II Year

The Supreme Court on the 11th of January proposed to form a committee of experts and senior officials

which will submit a report to the formers citing any changes regarding the farm bills. In defence of the Centre, it asked the latter to put the bills on hold for the time being till the issues are resolved.

Since the farmers refused to appear before the appointed Committee, the Centre offered to form another joint committee which will comprise the previously appointed experts and farmer



Photo: The Financial Express

representatives.

This occurred during the tenth round of negotiations held on the 20th of January where Centre finally for the first time decided to put the bills regarding the farm laws on hold for about 18 months. It was an initiative to end all the agitation and protests which has been going on for the last few months. This proposal was taken very seriously by the farmer union and asked for some time to discuss and meet again on the 22nd of January.

During the next round of negotiations, the Centre and the Unions met again to reconsider the government proposal. While the Centre offered a stay on the bills on the other hand, the farmer unions were adamant on the complete repeal of the laws. Both the sides were so strong on the positions that they could not even reach a decision on a date for the next meeting.

The farmer unions also mentioned that the tractor parade will go as planned on

Delhi's busy Outer Ring Road on the 26th of January. The police even requested them to hold the parade outside the national capital which was publicly rejected by the unions.

The laws which were enacted on September last year saw a lot of opposition from the farmers who have been protesting since November demanding a complete repeal of the three laws and a guaranteed MSP.

THE CHAOTIC AFFAIR OF RED FORT

Suprabha

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The 72nd Republic Day of India turned out to be a notoriously memorable one for its diversified activity as Farmer's Protest was conducted on the following day. On the 26th January 1950, the Indian Constitution came

into action symbolizing revolution against the British regime. Every year on this particular day National flag designed by Pingali Venkayya is unfurled with pride, spirit and ethnos to commemorate the day.

Social Media was flooded with a video shared by twitter and facebook netizens of a

verified account, holding 61.8k followers, named "Pakistan First" which tweeted — Khalistan Flag hoisted on Red Fort "BLACK DAY FOR INDIA", was shared massively.

The recent Tuesday, Tractor Parade along with thousands of protesters protesting against the Centre's farm bills broke barricades in the Capital



Photo: The Wire

and were indulged in the act of vandalism. It was deemed that the demonstrators replaced the Tricolor atop the Red Fort with Khalistan flag, not only that it ended up pelting stones against police and damaging public and private properties.

When the situation was out of control police started baton-charging the mob along with lobbing tear gas shells and a total of 22 FIRs have been registered. Also, there was a rumour, the banned terrorist group SFJ- Sikhs for

Justice announced reward of USD 2.5 lakh, two weeks ago for anyone who will hoist Khalistani flag on Republic Day on the Red Fort. Union Minister Prakash Javadekar accused Amarinder Singh - led Congress government in Punjab, also leader Rahul Gandhi for creating ruckus in the Capital by provoking the farmers, that he was not only supporting farmer protest but also instigating. However, the blamed was pinned to the BJP Union Home Minister by the

Congress for failure to handle the matter creating situation of unrest and demanded his removal from office.

Fact-check by the AFWA, on zooming video by Intelligence Agencies, debunk both the claims that the flag was not Khalistan flag but Nishan Sahib flag holding powerful significance to differentiate true from falsehood and the other was a farmer's flag

THE INEVITABLE FUTURE OF FARMING

Vikas V

B.Sc. Agriculture III Year

By the year 2050, farmers ought to reach a powerful level of food production to assist feed a growing world population. Fewer in range, they're going to operate multifarious businesses with advanced new technology to extend potency on farms.

The predictions come back from consultants who study food and farming trends. A different trend is rising in extremely developed countries with a lot of health-conscious populations. The main focus on starch-based crops like corn can shift to a lot of plant-based proteins like soybeans and alternative legumes, says Derek Norman, head of

company capital at Syngenta Ventures, that helps support alternative firms that share its vision of manufacturing a lot of crops with fewer resources.

There is a new technology that permits scientists to exactly edit genes in deoxyribonucleic acid with the goal of making an improved crop selection. Within the future, factor written material



Photo: Blade Runner 2049

ought to modify farmers to pick out specific crop varieties that have options like resistance to completely different diseases, drought tolerance or a lot of fascinating oil content. factor written material can give a bigger form of crops which will be adult by written material out traits hampering widespread production.

As Norman said, *“By 2050, there will be gene-edited crops, and it will trigger a much wider variety of crops being grown,”*

Nowadays farming relies

more on complex equipment with lots of electronics, data collection will play an increasingly larger role in farm management. Programs like AgriEdge Excelsior® from Syngenta help crop growers learn to use data for the appropriate management of farm. In the future, farms are bound to have an increased need for data and specialists in information technology.

A hint for the future:

Our predictions will shed light on the long run, we are still 29 years far from 2050. An entire

new generation of growers, who don't seem to be born, are going to be farming mid-century, and far can happen between now that we have a tendency to cannot predict.

But if the past is a clue to the long run, farmers can still look for higher ways in which to provide crops by holding innovation.

But we should keep in mind: *“Every civilization was built off the back of a disposable workforce.”* (Blade Runner 2049)

THE SCIENCE BEHIND FLEHMEN'S RESPONSE

Rahul Tharun

B.Sc. Forestry I Year

Described in 1813 by Ludwig Jacobson, the Flehmen's response is a behavioral aspect observed in numerous mammals. This response is signified by the animal curling its upper lips, exposing its gums and teeth while holding this position to sniff, with its nostrils usually closed. By doing so the

animals transfer pheromones and other scents towards the Vomeronasal or the Jacobson's organ.

Pheromones are chemical compounds that perform functions similar to those of hormones, only outside of the organism's body. The Vomeronasal organ is found at the base of the nasal cavity close to the vomer and nasal bones, thus the name. This organ is a paired auxiliary

olfactory sense organ which has specialized receptor cells. When the particles from the air sniffed in reach the receptors, they send specific signals to the animal's brain which interprets the sensory information as a particular smell, such as the presence of a potential mate, territorial threat etc.

A similar mechanism involving Jacobson's organ is observed in reptiles too.

Instead of sniffing, reptiles slither their forked tongues in and out. The two-pointed ends of the tongue collect chemical particles on their moist surface and fit perfectly into the vomeronasal organ when pulled back in. This behavior is in most cases associated with a sexual reason or to detect territorial threats. In the first case female mammals release pheromones that can be read by males of the same species and understood that the individual is ready to mate.

The second case is observed mostly in territorial felines like tigers. Tigers mark their territories by spraying urine on tree barks. Urine is packed with pheromones. Any new tiger in the region will know that its trespassing. If it wants to challenge the resident tiger to claim the territory, it will spray its urine on trees of

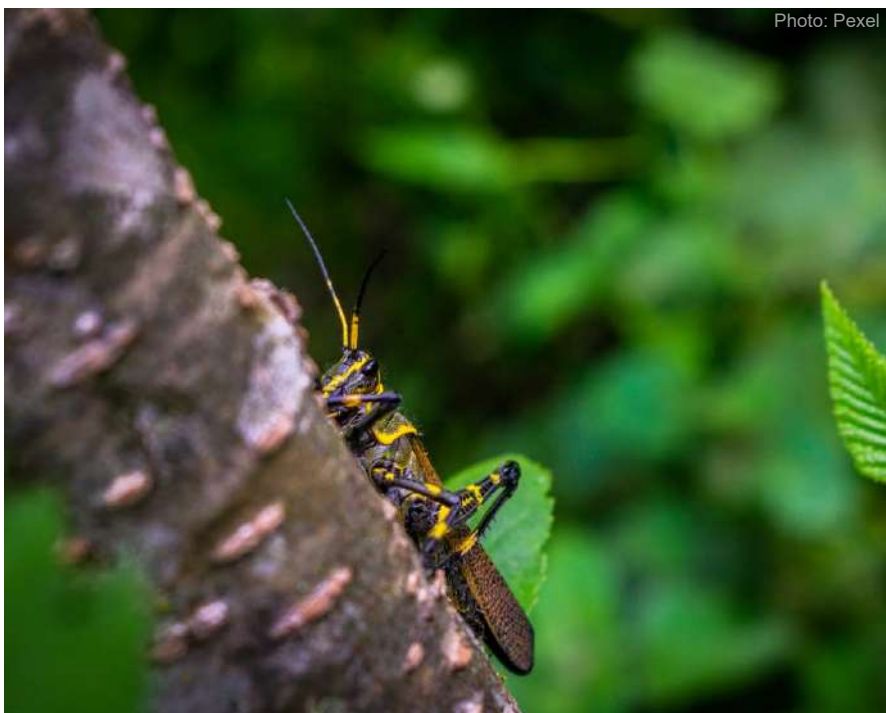


that territory. It will later be detected by the resident tiger and they will battle till one of them gives up and flees.

To make sure the smell is strong enough to warn off intruders, tigers urinate on trees regularly and sometimes repeatedly on the same tree.

Sometimes a grin, or expression of pain are mistaken for the Flehmen's response. Their faces look as if they are flinching upon smelling a very uncomfortable scent, hence the Flehmen's response is also called as "The Stinkface".

CATASTROPHIC COLLAPSE OF THE LARGEST CLASS OF ANIMALS



Sonakshee

B.Sc. Agriculture II Year

The insect population is falling at the startling rate of 1-2 percent every year. In more than a dozen studies carried out recently, more than 30 scientists have expressed their concern and warned about the consequences of the alarming decline in insect population that has been taking place since the last few decades.

In their studies scientists haven't been able to pinpoint a single reason that could be responsible for causing such a massive decline rather they're calling it "death by thousand cuts" as a number of stressors

are simultaneously leading to this insect apocalypse.

The major stressors bringing about this reduction in the largest group of organisms are deforestation, agriculture expansion, pollution, climate change and obsolete use of insecticides and herbicides among others. Insects' dwindling numbers can have very adverse effects on our environment and on the lives of other organisms including humans as they provide many important ecosystem services like pollination, biocontrol of

weeds and pests and macro decomposition of waste just to name a few.

Though these disturbing data suggest that we could lose about one third of our total insect's population in two decades, but there's still hope, the decline is not seen in all the parts of the world and not all the insects are declining at the same rate, some are even flourishing. Although nobody ever thinks of an insect as their favourite animal nor they're much fascinating to most of us, but that doesn't make their role in our lives any lesser and

nor does that reduce the need of making insect protection a priority.

The goal should be to bring a change in societal attitude towards insects. The information about the crucial role of these small creatures in proper functioning of the ecosystem should be disseminated, people should be made aware of the fact that insects aren't just pests and this requires joint efforts of the nations, groups, organisations, and individuals including us.

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