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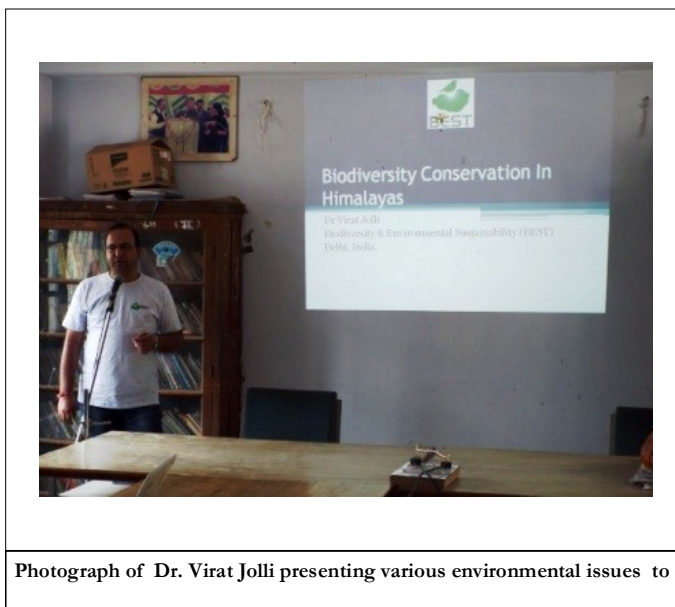
- Dr. Virat Jolli
- Dr. Aniket Kumar
- Mr. Rajneesh Dwevedi
- Mr. Sumant Kumar

ABOUT THE NEWSLETTER

It gives me immense pleasure to put forward the first issue of the *Newsletter of the Biodiversity and Environmental Sustainability* (NWLBEST) on the New Year Eve. The newsletter intends to ignite minds of people of India and encourage them to work for biodiversity conservation which is critical for human survival.

Biodiversity and Environmental Sustainability (BEST), A trust for Nature Conservation is established in 2014 by group of Delhi based young researchers who received their education from University of Delhi. During their research they felt the need to establish a Non Governmental Organization (NGO) for promoting and professing their ideas and knowledge for betterment of India's Environment. India being a developing country and 2nd largest human population has been facing serious environmental challenges. Therefore, to protect India's natural resources and mitigate environmental pollution and awareness is key instrument to deal with the situation. Therefore, from time to time BEST organizes environmental awareness programs.

It's a quarterly Newsletter and will publish news, articles, travelogue, report and opinion. We encourage citizen of India to submit report,



Photograph of Dr. Virat Jolli presenting various environmental issues to

news on any issue of environment that will ensure nature conservation and protection. The NWLBEST will provide platform for the exchange of ideas of academicians, environmental scientists, researchers, wildlife managers, students and policy makers. Furthermore, the NWLBEST will be a medium for transmission of information related to BEST activities to targeted audience. Since the

establishment of BEST, number of environmental awareness programs has been organized in parts of Himachal Pradesh. The target audience includes native students living close to protected areas. Their voices need to be heard and their views and problems need to be addressed if we aim to achieve environmental sustainability.

DR. VIRAT JOLLI, BEST, INDIA

WHERE HAVE ALL SPARROWS GONE?

If you ask a common man in Delhi, what are birds? They will simply say *Chidiyaa* which is a Hindi name of 'House Sparrow' a common bird of Indian sub continent. But how many of you, who are residing in Delhi have spotted or seen this bird near your home, garden or parks? I

guess only few of us may have seen this bird. But have you ever think "where have all sparrows gone?" Once a common bird now difficult to find. Our little bird is struggling to survive in Delhi for food, suitable nesting place, competition from other bird species and air pollution. Absence of

sparrows indicate environmental degradation due to human activities which later can affect humans as well. So let us work together to make an effort to save this little bird. Want to know how? Email us for more detail.

**Dr. VIRAT JOLLI
BEST, INDIA**

PRELIMINARY ASSESSMENT OF AVIAN HOMOGENIZATION IN WESTERN HIMALAYAS

Western Himalayas is known for its unique avian diversity. It has large area under forest cover. It is also categorized as Endemic Bird Area (EBA) which means this region has certain bird species that are only found in this region. However, in the recent past human population in Himalayas has

increased manifolds, moreover developmental needs of the region has resulted in expansion of road networks, establishment of dams, and promotion of tourism. Though it leads to improvement of standard of living of people living in mountains. However, it has come at the cost of emergence of new towns, expansion of existing towns and cities. This has brought about land use change which likely to affect the biodiversity of this region.

Therefore to assess the impact urbanization on Himalayan birds, a study was carried out in Sainj, Kullu and Mandi Town of Himachal Pradesh, India. The BEST team that was led by Dr. Virat, and as-

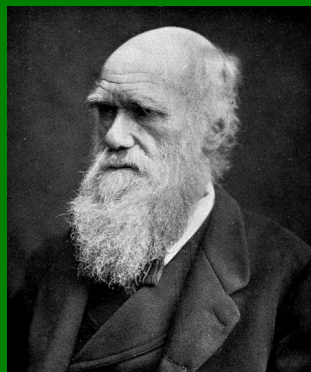
sisted by Mr. Chuni Lal and Mr. Dabe Ram conducted bird surveys in June 2015 in the different towns. The study results were presented at British Ornithologist Union Annual Conference 'URBAN BIRDS 2016' held in April, 2016 at Leicester, UK.

The study showed avian homogenization with domination of few generalist species like Common Myna, House Sparrow and Rock Pigeon were observed during the preliminary assessment. A detail study has been carried out by BEST to investigate further. The study will be useful for managing avian biodiversity in Himalayan town and cities.

DR. VIRAT JOLLI
BEST, INDIA
&
ASSISTANT PROFESSOR
DEPARTMENT OF ENVIRONMENTAL STUDIES,
SHIVAJI COLLEGE (DU)



Photograph of Common Myna and Bird



Charles Darwin

It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.

REWILDING URBAN LANDSCAPES

In the month of November 2016, a news delighted all the nature lovers and wildlife enthusiasts when they heard about sighting of leopard in Delhi. The news came into light when locale living near Yamuna Biodiversity Park (a biodiversity park of DDA being developed by CEMDE, Delhi University) informed the Park official that they spotted some unusual animal along the Yamuna River. It was later confirmed as Leopard by YBP Park official.

YBP scientists have been working

tirelessly to restore once degraded Yamuna flood plain. One can see plenty of waterbirds, small mammals in the park however sighting of large carnivorous mammal for the first time confirms the success story of this park.

"The upstream stretch of the river is an open, fertile wetland where a lot of agricultural activities are done. A large number of leopards are known to inhabit the Kalesar National Park and it must have come from there," said CR Babu, Professor Emeritus,

CEMDE. The leopards normally move out from their known habitat due to congestion and low prey base.

Prof. Babu called this spotting of the animal a major achievement for the city because it has established the success of biodiversity parks and how these reconstructed ecosystems can restore an area's wildlife.

DR. VIRAT JOLLI
BEST, INDIA

ENGAGING STUDENTS TO MONITOR AVIAN DIVERSITY

Sainj Valley, also known as God Valley is located in Kullu District of Himachal Pradesh. It has rich diversity of birds which is not known much to native people. In June 2015, we organized one such field visit involving local students of Govt Sr Sec School, Sainj and Raila. Preeti, Meena, Promila, Deepa, Jagat and Saina participated in the trip. We visited upper Sainj Valley. During our visit we realized how difficult it was to reach there, we hired a local car to reach there, it was an adventurous drive, as our driver

was trained so somehow we manage to reach there. We tracked 2 km uphill and found Ashy Drongo, Plain backed Thrush, Scaly bellied Woodpecker and Grey hooded warbler. Along the track We were excited and filled with joy when Meena Thakur one of our student

spotted party of Black Partridge. Students found the trip useful as they able to identify their local birds and in future can contribute us by collecting bird data from their nearby areas and help us in monitoring the avian biodiversity of Sainj Valley.

Dr. Virat Jolli, BEST



Photograph of students with Virat; Black Partridge and Ashy Drongo

IGNITING THE YOUNG MINDS TO SAVE ENVIRONMENT

The natural environment of India is rapidly deteriorating owing to anthropogenic factors. Land use change, deforestation, rapid urbanization and industrialisation are the major factors affecting India's environment. We can minimize the effect of anthropogenic factors if we formulate plans and policies sensitive to environment. In order to achieve this there is need to inform and educate Indian masses about the negative impacts of poor environment quality.

Youth is the future of nation and well informed youth can

become a human resource. However, it is only possible if they were provided with adequate skills and knowledge. Therefore, it is highly desirable to have regular programs and courses meant for environmental education and awareness. To address this issue our Department of Environmental Studies organized series of field visits to the following sites to make students understand why we should care for our environment.



Visit of students to Kamla Nehru Park to

1) Kamla Nehru Ridge: It is located in North Delhi and is a remnant of Northward extension of Aravali range. Ridge area has forest cover and thus is an ideal site to study



Jane Goodall

Every individual matters. Every individual has role to play. Every individual make a difference.

the forest ecosystem of Delhi. Students of B.Com (Hons) Semester-I and B.Sc. Applied Physical Science Sem-I visited this site and they learned to differentiate between forest and park. Students also learned to identify and counts birds and during their visit they spotted birds like, Jungle babblers, Red whiskered bulbul, Red vented bulbul, Indian peafowl, Rufous tree pie, Common myna, Eurasian collared

dove and Common tailor bird. Though KNR has number of tree species however, invasive plants like *Lantana camara* and *Prosopis juliflora* Vilayati Keekar have spread throughout the park. Our students also recorded and counted monkey population and based on our study we concluded that park manager should check the increasing population of monkeys.

2) National Zoological Park, Delhi: It is also known as Delhi Zoo and is situated on Mathura Road, New Delhi. It has representative fauna of India along with some exotic animals. Students of B.A (Prog) Semester-I visited the zoo and learned many new facts about animals. They recorded and listed the animals on the basis of their foraging behavior and

accordingly classified it e.g. in herbivorous section they recorded animals like Sambar deer, Black buck, Neelgai and One horned Rhinoceros, similarly in Carnivorous section they recorded, Asiatic Lion, Royal Bengal Tiger, and Leopard. Apart from this they learned about variety water-bird residing in the zoo.

3) Najafgarh Drain: It's the largest drain and main culprit for polluting River Yamuna. As the drain is highly polluted

therefore an ideal site for studying water pollution. Stu-



Students visited National Zoological Park.

dents of B.Com (Prog) Sem-I visited the site and prepared

a list of factors responsible for water pollution. They concluded that large volume of sewerage waste water is discharged into Najafgarh drain which resulted in water pollution. Students also recorded food chains and food web present in and around drain.

4) Sultanpur National Park: It is popularly known as paradise of birds and is situated in Gurgaon, Haryana.

POEM

NATURAL RESOURCES

As a child I sat in school learning
about the natural resources in the
world around me
I saw that as something to
memorize for a test
Not realizing that the state of
natural resources
Would change with the passing of
years
Water, once clear, reflecting the
color of the sky
Turned brown and nearly opaque
The ocean full of so much life there
are still unknowns at it's depth
Filled with plastic and oil spills
destroying the wild life it once
supported
Water, precious water, the
necessity of all life
Became more rare and even more
precious
The birds of the air adapted
Creating smaller families
Gathering away from "civilized"
populations
In order to continue to sustain their
species
As the human population swelled
Without respect for varieties of life
around it
Other mammals and plant life
dwindled
The list of extinct creatures
continuing to grow
Until even the bees necessary to
the pollination of plant life
Were threatened
Mountains were blasted to release
their minerals
Whole forests were cut without
trees being replanted
As mankind mined the world's
natural resources
As those interested only in
monetary profit
Denied global warming and the
effects we humans
Have on the world around us
Polar bears entered towns looking
for food
Having been robbed of their glacier
homes
No longer a child
Entering the youth of my old age
I see natural resources now
As the people much younger than I
Who take the time and make the
effort
To stop and reverse the process of
natural destruction
Of the generations that preceded
them
The environmentalists: the heroes
of future generations

Ms Beth Plankey
Freelancer Writer
United States of America (USA)

This park has around 250 bird species out of which some are migrants and come from Siberia. Students B.Sc. (H) Mathematics Semester-I visited this park and learn about wetland ecosystem and their ecological importance. They also recorded and counted birds. During the visit they recorded water birds like

Grey leg goose, Grey heron, Pond heron, Swamp hen, Cattle egret, Little egret, Mallard duck, Wigeon and Painted stork. Owing to conversion of wetland to terrestrial land waterbirds are prone to extinction. Therefore wetlands are critical for their sustenance and they must be protected.



Sultanpur National Park

5) Solid Waste Management in Delhi: Students of BBS Semester-I, conducted household surveys in different parts of Delhi to study the solid waste management.

During the study many interesting information about solid waste were found out. It also highlighted the strength and weakness of Delhi's solid waste disposal machinery.

The overwhelming participation of students gives us a ray of hope in our fight against various environmental problems.

DR. VIRAT JOLLI
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KNOW YOUR TREE: *CASSIA FISTULA* INDIAN LABURNUM (AMALTAS)

Cassia fistula also known as Indian Laburnum is a medium size deciduous tree commonly planted in parks and gardens of India. Cassia is a genus of flowering plant in the legume family in the Fabaceae. It is native to Indian sub continent and is better adapted to grow in semi arid region. Bees and butterflies are pollinators of

this tree species.

In Indian ayurvedic literature it is known as Aragvadh which means disease killer. Its fruit pulp, bark of roots and flowers has medicinal properties. It is widely used as laxative and treating cough and skin disease.

DR .VIRAT JOLLI, BEST, INDIA



Cassia fistula in full bloom
(Photo: Wikipedia)

KEOLADEO NATIONAL PARK: THE HEART OF INDIAN BIRDLIFE

Keoladeo National Park (KNP) is a birder's paradise in winter. Its diversity of birds excels far from any other Sanctuary in India, and in my own capacity as a biologist and student of nature have travelled far and wide in the Himalayas and other parts of India but such huge congregation of migratory birds is not to be seen anywhere else. We as a group of young researchers are fond of tracking, camping,

travelling in the forests, and when given a chance none of us want to be left alone in the busy streets. So, the three of us decided to have rendezvous with nature in the National Park in early part of January for some scientific

observations regarding the health and activities of the Park. The Keoladeo National Park has been hunting ground of Maharajah of Bharatpur and later his associates and its name is Keoladeo is derived



Keoladeo National Park, Bharatpur, Rajasthan.

from the name of an ancient Hindu temple of Lord Shiva. KNP has been declared a UNESCO world heritage site that has seen more than 300 species of birds in an area of approx 28 km². We decided to have a reconnaissance on foot among the woods and trails for exploration among the least disturbed sites of the Park, although one can take bicycles and rickshaws as per their need and liking. Though the park is famous for migratory birds and mainly waterfowls there are a huge number of passerines and other resident birds that are great attractions for visitors. In spite of so many species and varieties of birds, pheasants have the most elusive behaviour and feeds to your curiosity. One such group consists of partridges on

whose calls I had woken up that morning to. Listening to folklores among the bonfires in Ladakh or trekking with friends among the woods in

Himalayas. Partridges have always been topic of interest. The beauty and elegance of the bird has not remain hidden and when John Lockwood Kipling believes "the Indian lover can pay his

sweetheart no higher compliment than to say she runs like a partridge", those who have seen the bird would agree with him. KNP is rich in population of Grey Francolin, and

though the exact number is not known many could be seen around in early morning and evening along the trails and in the dry scrubby vegeta-

tion. Their calls could be heard from far off and can be seen scurrying for covers as soon as they sense someone.

The human nature makes you crave for those things which you don't get easily, and grey francolin has been such a wonderful example.



Painted Storks basking under Sun.

In evenings you can see jackals, wild boars and spotted deers among the flocks of the fowls. Forests, mostly in the north-east of the park, are dominated by kalam or kadam *Mitragyna parvifolia*, jamun *Syzygium cumini* and babul *Acacia nilotica*. As we go along the trails we realised we were not the only one who had been keeping the eyes on these birds, there were jackals hidden behind the bushes

or raptors like tawny eagles who were surveying from the sky for any opportunity to have a grab. One has to be very patient if one wants to be close to these birds, and position yourself at a strategic point and wait as their calls are so peculiar one can easily know where these birds are foraging. We had to be careful as wild boars were not far digging away for tubers and having their meal. The tryst

with wilderness gets your adrenaline pumping and refreshes you to the hilt. Let's hope the wilderness keeps up as we have seen in future too.

**Dr ANIKET KUMAR,
BEST, INDIA**

AEROSOL LOADING IN DELHI NCR

Delhi National Capital Region (NCR), is considered India's one of the most polluted region. The source of pollution in this region is natural (dust from desert and nearby area) as well as anthropogenic (emission from industry, vehicles, biomass and biofuel). The increasing concentration of aerosols (solid or liquid particles in the air) affects our life in many ways. It affects climate directly by scattering and absorbing solar radiation and indirectly by modifying cloud properties. It also affects human health on long-term

and short-term basis, which are responsible for premature death. According to World Health Organization (WHO), particulate matter is responsible for 3% cardiopulmonary and 5% of lung cancer death globally. After quoting the report of global burden of disease (GBD), the Centre for Science and Environment (CSE), India, has declared that air pollution was responsible fifth leading cause of death in India. Fine particulate matter with less than 2.5 µm in diameter is a considerably greater health problem. In fact, smaller

particles with less than 1.0 µm in diameter remain suspended in air for weeks and creates greater health problem because they can easily reach non-ciliated portion of lung and even alveoli. Aerosol optical depth (AOD) is the primary optical properties which is used to quantify the aerosol loading in the atmosphere. In my study conducted at JNU, reported much higher aerosol loading during summer season suggesting high air pollution in Delhi NCR region.

MR. SUMANT KUMAR, JNU, INDIA.

POSTER MAKING WINNERS AT



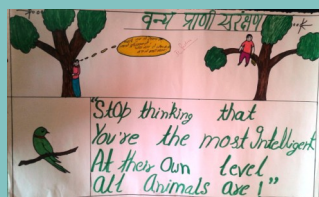
GOVERNMENT SENIOR SECONDARY



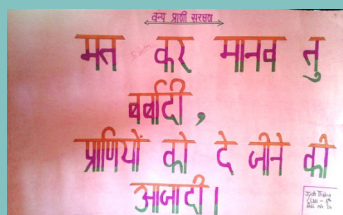
SCHOOL, RAILA, KULLU ON WILDLIFE WEEK 2016



SLOGAN WRITING WINNERS AT GOVERNMENT SENIOR



SECONDARY SCHOOL, RAILA, KULLU ON WILDLIFE WEEK 2016



VILLAGE PONDS: IMPORTANCE OF SMALL WATER BODIES IN ENVIRONMENT AND SOCIETY

Post independence India has grown as a major economic power in the world. Major driver of Indian economy has been rural economy, which is dependent on agriculture. Needs of the rural economy

has continuous grown since then. Post green revolution agriculture heavily utilized instruments of modern agriculture including synthetic fertilizers, pesticides, heavy canal system and ground irrigation. Because of the above, either traditional practices have completely vanished or poorly understood to practice. One of the important support system of the agricultural was the village pond system, however their values have reduced or lost in the village system as a whole.



Village Pond in NCR Region.

Village ponds are the most important infrastructure of the rural India. These provided many services to the rural community. These are used for aquatic plantation, fisheries, irrigation, potable water, religious, cultural; and traditional practices. Apart from direct benefits to the human community they also provide crucial ecological value to ecosystem sustainability. Village ponds function as natural purifiers of water and function as the lungs of the river systems. Village ponds are crucial in recharge of the water table. It also function as the major habitat for biodiversity, including waterbirds, amphibians and reptiles.

Some of the threatened birds nests in these ponds regularly. Village pond becomes even more important for country like India because of uncertainty in monsoon. Hence they also function as water storage system of the village. However, rapid and unplanned development is leading to the loss of these valuable ecosystems.

Village pond ecosystems are threatened because of water pollution, eutrophication,

waste dumping, municipal waste, reclamation and biological invasion.

Water pollution because of waste dumping, nutrient enrichment is making village pond toxic and threatening the biodiversity. Eutrophication has caused heavy decline in the oxygen level of the ponds and hence biodiversity loss.

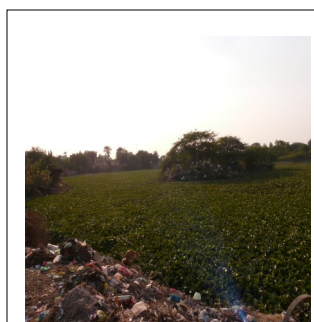
Recent recognition of the small water bodies by United Nation and other international



Colony of Painted Stork nesting in village pond.

organizations have highlighted

their values. This has led to the recognition to make policies to conserve these aquatic ecosystems. Hence various countries are integrating these ecosystems in their priority areas of conservation. Recognizing the same, Indian government has also taken few important policy decisions. Many ponds have been restored and new ponds have been created at the village level to ensure conservation of these ecosystems.



Dumping of waste in village pond.

Mr. RAJNEESH DWEVEDI
BEST, INDIA
&
ASSISTANT PROFESSOR,
DEPARTMENT OF ENVIRONMENTAL
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ACTIVITIES



ENVIRONMENTAL AWARENESS PROGRAM AND EXHIBITION DISPLAYED IN THE YEAR 2014 IN SIANJ SUB THESHIL, KULLU, HIMACHAL PRADESH.



NATIONAL CONFERENCE CLIMATE CHANGE CO-ORGANIZED BY BEST WITH DDUC (UNIVERSITY OF DELHI) IN 2015.



DEBATE ON ENVIRONMENT ORGANIZED BY BEST IN 2016 WITH LADY IRWIN COLLEGE(DU) IN 2016.



ENVIRONMENTAL AWARENESS PROGRAM CARRIED OUT IN SCHOOLS OF KULLU, HIMACHAL PRADESH & WILDLIFE WEEK WAS CELEBRATED IN 2016.

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*For online registration email us at laharjit@gmail.com.

Signature

KNOW YOUR TRUST-BIODIVERSITY AND ENVIRONMENTAL SUSTAINABILITY

Dr. Virat Jolli who is the Managing Trustee and President of this Trust, did his PhD from University of Delhi in the field of Environmental Studies in the year 2014. He has done his matriculation from Punjab School Education Board and stood 2nd in the School, he did his graduation in Biomedical Science in 1st Division from University of Delhi and M.Sc. in Environmental Biology from the same University. All this I am mentioning because from the very beginning he has immense interest in Environment, he often thinks a lot on how rapid economic development going to impact birds, animals, human and biodiversity. This thought always came in his mind.

Then he discussed this idea amongst his colleagues, who were classmates and also PhD scholars. They also give their valuable ideas and decided to create non profit organization through which they fulfill their dream regarding environmental



BEST General Secretary, Mrs. Kamla and Treasurer Mr. Harjit Lal.

conservation and they suggested to name this trust as Biodiversity and Environmental Sustainability which mean to preserve the diversity of life and environment on this earth.

This Trust was established on 25th February 2014 Registration No:738. Now it will complete three years in February 2017. The Trust has also got 12A and 80G certificates from Income Tax Department Exemption, New

Delhi.

Through 80G certificate, Trust can raise its funds and this fund can be utilized in the welfare of humanity without the discrimination of caste, creed and religion. So, on behalf of Trust i.e. Biodiversity and Environmental Sustainability, we appeal all the people who reads this information contribute to this Trust so that we can fulfill the purpose and keep our Earth, Sky, Water, Biodiversity healthy and clean.

MRS. KAMLA
GENERAL SECRETARY
&
MR. HARJIT LAL
TREASURER
BEST, ROHINI, INDIA